Universidad Pablo de Olavide

Department of Business Administration

Doctoral Dissertation

Absorptive Capacity as Antecedent of Innovation: Its Relationship with Market Orientation, Human Capital and Performance

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Resumen de la Tesis Doctoral

El presente trabajo se centra en diversos antecedentes de innovación en el contexto del desempeño organizacional a partir de la literatura de gestión estratégica. La discusión implica cómo varios aspectos tales como el conocimiento, la capacidad de absorción, el capital humano y la orientación al mercado determinan la innovación y el rendimiento de la organización. Con ello, la revisión permite determinar las brechas actuales de investigación a partir de las cuales se articulan las cuestiones a investigar. Tras la exposición se analizan y plantean las relaciones entre los principales constructos en los que se centra la investigación. El diseño de la disertación se articula en tres investigaciones que se relacionan entre sí. Las investigaciones empíricas se realizan en el contexto vitivinícola español, a través de una muestra de 111 bodegas. La elección de dicho contexto se debe a su contribución a la economía española, destacando el enoturismo. Esta industria emplea aproximadamente al 6.7% de los trabajadores del sector alimenticio y genera una facturación de más de cinco millones de euros (ICEX, 2014). España es el segundo mayor exportador de vino del mundo en términos de volumen y valor. La industria ha experimentado cambios tecnológicos en su producción y la forma en que vende sus productos. Como parte final, se presentan las principales conclusiones a partir de las cuales se generan diversas líneas globales y futuras de investigación.

Chapter 1: Introduction

Chapter 1: Introduction

1.0 Abstract

In this introduction chapter, I aim to present the elaboration on several antecedents of innovation in the context of organizational performance. The discussion involves how several aspects such as knowledge, absorptive capacity, human capital and market orientation determine company's innovation and performance in the end. This analysis will lead to present the gaps in these literatures and will be the bases of this research contributions. The main concepts and phenomena are studied throughout the dissertation. I will also explain how the layout of the dissertation is organized and how the research questions and findings of the three research papers relate to each other. Last but not least, I will bring up the research questions and expected contributions of this research in the future.

Keywords: knowledge, absorptive capacity, human capital, market orientation, innovation

1.1 Innovation and Its Antecedents

As the title of the dissertation, "*Absorptive capacity as antecedent of innovation: its relationship with market orientation, human capital and performance*" suggests, this work explores several lines of research in management: entrepreneurship, strategic management, strategic marketing, human resource management and knowledge management.

In the field of strategic management, innovation has been linked with various antecedents. Different researches have been talking about the role of innovation in upgrading company's performance. The expression "innovation" means the improvement and utilization of new thoughts or practices in associations showed regarding another item, administration or strategy for generation or another market, authoritative structure, or regulatory framework (Damanpour and Gopalakrishnan, 1998).

Questions about organizational innovation opens new points of view on various fascinating issues that have surfaced lately, including the issues of societal advancement and institutional change. In the contemporary knowledge-intensive business environment, companies increasingly depend upon external sources of information to promote innovation and improve their performance (Rosenbusch et al., 2011). Innovation also is an important function of management because it is linked to business performance, as has been demonstrated in many studies (e.g. Damanpour and Evan, 1984, Prajogo et al., 2016, etc.).

Most literatures have agreed in robust relationship exists between innovation and performance. As is evidenced by reports that innovation is becoming increasingly important as a means of survival, not just growth, in the face of intensifying competition and environmental uncertainty (Lichtenhaler, 2009). However, less is known about the antecedents and types of innovations that better explain performance, as well as whether the size and age of companies could moderate this relationship.

One of which that has been demonstrated in various researches is absorptive capacity (ACAP). As a concept, ACAP is instrumental in organizational learning, as it has been found to accelerate organizational learning (Jansen et al., 2005); increase the use of interactive mode in technology sourcing (Roberts et al., 2011) and collaboration with external organizations (Rakthin et al., 2016); enhance organizational learning and innovation (Jansen et al., 2005); and positively influence the acquisition of technology from both internal and external sources (del Carmen Haro-Dominguez et al., 2007).

Furthermore, ACAP refers to a firm's ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends (Zahra and George, 2002). ACAP captures not only the acquisition or assimilation of information by an organization but also its ability to exploit it. Therefore, an organization's ACAP does not simply relate to the organization's direct interface with the external environment; it details the transfers of

knowledge across and within subunits that may be quite removed from the original point of entry (Roberts et al., 2011).

ACAP as a construct has been widely used in the analysis of an array of diverse and complex organizational phenomena (Zahra and George, 2002). Therefore, it would serve as an excellent link between organizational cultural variables, such as human capital (HC), marketing orientation (MO) and performance outcomes. However, most recent models in the stream of these constructs are still unexplored. Therefore, this study aims to demonstrate that ACAP is an important factor for innovation, while possessing ACAP alone is not enough.

ACAP as a concept comprising the willingness to learn must work in conjunction with MO, which guides firms to place emphasis on learning market intelligence (Rakthin et al., 2016). Furthermore, the full benefit of learning also depends on how much new knowledge has been absorbed by HC, and what actions have been taken as the result of learning (Franco et al., 2014). Therefore, the second objective of this research is to investigate the relationship among learning orientation (the willingness to learn), MO (the focus of learning), and the subsequent absorption process. I expect to provide empirical evidence from this study to explain deeper about the antecedents of innovation.

Furthermore, by applying the developed theories, I plan to utilize our data and model to demonstrate that ACAP is one of the important dynamic capabilities that would help companies to optimize the potential benefits of learning-oriented and market-oriented organizational cultures. It is my objective in this thesis to contribute to the innovation literature by providing deeper and more direct analysis on the predictors of innovation.

1.2 Reason to Choose Wine Industry as the Research Setting for the Dissertation

When organizations are engaged in a constant learning process, they would try a certain strategy, learn from the experience, and take corrective actions and modify their strategies to

achieve optimal performance (Roper and Love, 2018). Thus, a firm's generative and adaptive learning can shape and re-shape the firm's strategic priorities. Learning drives the cycle of goal formulation, execution, appraisal, and revision (Cohen and Levinthal, 1989). Moreover, innovation is an important function of management because it is linked to business performance, as has been demonstrated in many studies (e.g. Damanpour and Evan, 1984; Prajogo and Ahmed, 2006, etc.). The findings uniformly indicate that a robust relationship exists between innovation and performance. Within a company, innovation and performance relate positively to each other (Petrakis et al., 2015).

For having better result for this research, we chose wine industry as the third biggest contributor to Spain's national economy, with reference to wine tourism. Wine companies in Spain were used to conduct this research because they are known to be one of the highest contributors to the country's GDP, which employs about 6.7% of workers in the food industry and generates a turnover of over five million Euros (ICEX, 2014). Spain is the second largest exporter of wine in the world in terms of volume and value. The industry has experienced technological changes in its production and the way it sells its products. The industry is very dynamic and always open to various ways of knowledge absorption, market strategy implementation as well as different types of innovation (Giuliani, 2007).

We expect that dynamic environment of Spanish wine industry can give us clear view about the relationships of the constructs and organizational innovation. This thesis extends previous research by assigning several constructs to innovation, namely ACAP, HC, and MO.

1.3 Gaps in the Literature

Different types of innovation frameworks have been created that is consistent with the firm's strategic objectives (Cohen and Levinthal, 1989). On the basis of the resource-based view (RBV), firms obtain competitive advantage by using resources in developing new products and

processes (Barney, 1991), which reflect the firm's proactive response to the environmental changes. Thus, the organization can obtain some type of advantage that could transform into positive outcomes.

I should mention that various studies have dealt with behavioral factors through investigation of human capital (HC) role in promoting innovation (Stucki, 2016; Wang and Zatzick, 2018). Nevertheless, these studies did not give adequate attention to some of the behavioral factors within the concept of HC such as absorptive capacity (ACAP) and external factors such as market orientation (MO), despite their effective roles in achieving innovation; due to the fact that HC ranks as most important resources and represents the main body of innovation (López-Cabrales, et al., 2009).

This study is expected to contribute toward innovation literature among industrial SMEs by involving the potential knowledge adoption and external generated knowledge (ACAP), as well as highlighting the role of MO to stimulate innovation. As the author, I expect to contribute theoretical proposition of: the relationship between individual contribution within an organization (human capital) and innovation; and innovation as a process of organizational learning and knowledge creation, which cannot be separated by external environment. Here, absorptive capacity (ACAP) will play as one major factor because it is related to acquiring new knowledge and exploit it afterwards. Other factors comprise human capital (HC), market orientation (MO) and performance. The points above have become the main motivation of this thesis, trying to contribute more on the interrelated topics.

1.4 Research Questions and Dissertation Layout

The three chapters immediately following this chapter, each deal with aspects of innovation and how it plays a role in increasing firm performance. For chapter 2, I will try to see whether the existing constructs of ACAP is enough to explain the phenomenon among Spanish wine

companies? Do the ACAP constructs correspond to the previous findings (Zahra and George, 2002; Jansen et al., 2005)? Later, chapters 3 and 4 also offer empirical investigations which also involve results found and developed in Chapter 2.

In chapter 3, I will take the first step by trying to answer the question: "To what extent the contribution of innovation to performance is contingent to its ACAP and HC?" Therefore, the aim of this paper is to deepen the relationship between HC, ACAP, innovation and performance. I also distinguish between different types of innovation and suggest research propositions that pave the way for the next two chapters. In chapter 4, I address the following question: "How can market orientation affect innovation and is there effect caused by ACAP?" Finally, in chapter 5, I will draw conclusions and recommendations for future research based on my findings from this dissertation.

Figure 1.1 shows the layout of the dissertation. Chapter 2, 3, and 4 are three papers discussing the empirical study. Chapter 5 reviews all the findings and concludes this dissertation by discussing the contributions and implications for theory and practice.

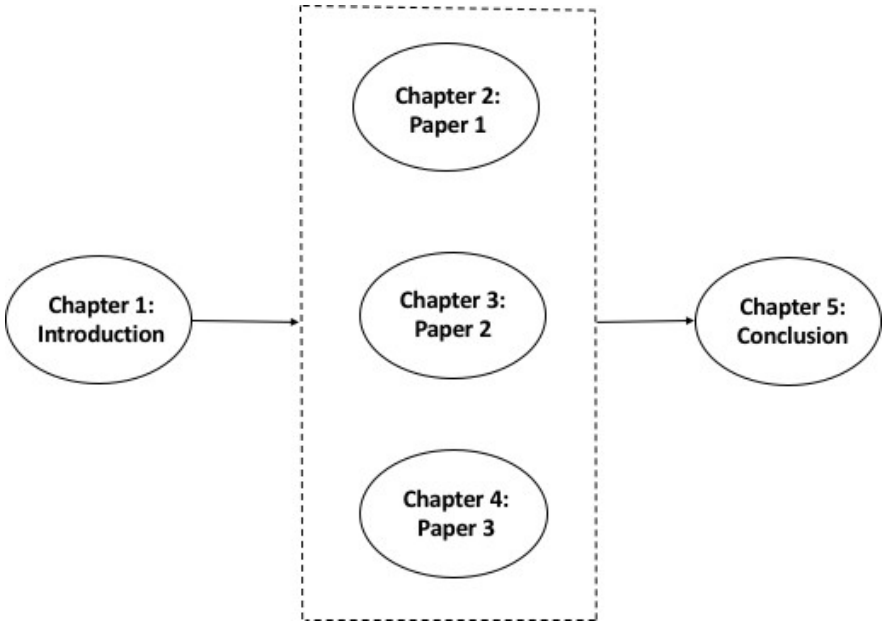

Figure 1.1: Structure of the thesis

1.5 Expected Contributions

By the end of this thesis, as the author I expect to contribute more on innovation, human capital and entrepreneurship topics. Initially, this research is initiated in practice, where questions, problems, and challenges are identified and carried out through practice, using predominant methodologies.

The primary aim in this study is to revisit the concept of innovation from a new perspective. So far, most studies on innovation talk about the outside aspect and internal manners of a company in dealing with innovation process, whether it is product, process, or management innovation. First, this study investigates and demonstrates the bridging role of A in generating value out of these inflow in terms of innovation. The incorporation of knowledge and innovation from outside to be taken inside the company is a complicated procedure, of both hierarchical and individual nature. Not exclusively does it require the presence of hierarchical gadgets (such as, a cross-divisional quality circle), which make connects between association individuals for learning sharing (Zahra and George, 2002).

Next, this research will explore more on how human capital (HC) plays important role on absorptive capacity and its relationship towards innovation. This second model will try to contribute to an emerging body of literature on the outcomes of ACAP (e.g. Zahra & George, 2002). The last model will also incorporate ACAP in the relationship of market orientation (MO) and innovation.

This thesis is expected to contribute to the literature by discovering findings in related matters. From the explanation in the previous part, the thesis will consist of three articles which will all focus on ACAP and innovation. Each article, when already finished, will be sent and presented at related conferences and journals in the field of entrepreneurship or innovation. By undertaking these academic procedures, the contents of this thesis are expected to receive insights from reviewers or fellow researchers as additional perspective toward this issue.

Results from each elaboration will be the main foundations of this thesis. In addition to contributing to the literatures, we advance construal level research by exploring whether innovation will continue affecting company's performance.

In the end, by examining the issues empirically, this thesis is expected to provide more knowledge and even practical implication on how absorptive capacity plays a profound role within an organization which will lead to better innovation and performance.

Chapter 2:

Revisiting Measure of Absorptive Capacity:

Applying the Scales in Spanish Wine Industry

Chapter 2: Revisiting Measure of Absorptive Capacity: Applying the Scales in Spanish Wine Industry

2.0 Abstract

The purpose of this study is to investigate to focus on aspects of innovation among Spanish wine industry. We use Exploratory Factor Analysis (EFA) followed by Confirmatory Factor Analysis (CFA) to review the existing theories related to absorptive capacity. From the research we conducted out of 111 wine companies in Spain, three factors are empirically proven to be in accordance with the theory, knowledge acquisition, assimilation and transformation. One other factor, knowledge exploitation, does not correspond with our empirical result. We have come to the conclusion that using other indicators related to knowledge exploitation capabilities might lead to more fit research model.

Keywords: absorptive capacity, organizational innovation, organizational learning, business administration, factor analysis

2.1 Introduction

In this era of globalization, competitive performance is needed by companies to survive and be able to win the competition. As the challenge of competition increases, companies need to recharge quickly and efficiently innovate on new aspects (Floyd and Lane, 2000). The idea of knowledge absorption, followed by exploration and then exploitation has developed as a topic in research on innovation and business enterprises (Shane and Venkataraman, 2001); (Damanpour, 1991). Knowledge will provide a role to absorb needs concerning exchanging activities among employees. According to Volberda et al., (2010) knowledge is information, contextual information, values, fundamental intuition and expert views that provides

observations for new information for the working environment, especially the knowledge that leads to employees' productivity.

Innovation can also produce knowledge as part of the absorption of knowledge for the improvement of the organization (Nonaka and Takeuchi, 1995). A wide range of studies in various strategic management literatures have shown the vital role of absorptive capacity (ACAP) in improving firm performance (Roberts et al., 2011); Franco et al., 2014). ACAP has been regarded as one of the keys to the company's innovation ability (Murovec and Prodan, 2009). This specific capacity enhances the speed, frequency, and intensity of innovation (Noblet et al., 2011). A study was conducted by (Escribano et al., 2009) who emphasized that capacity can use the flow of external knowledge and improve innovative results.

We examine the role of ACAP in terms of a process to identify and translate external knowledge inflows into organizational innovation. To support our examination, we choose tourism as the third biggest contributor to Spain's national economy, more specifically wine tourism. We use Spain wine companies to conduct our research because this industry has given massive contribution to the Spanish GDP, employs about 6.7% of workers in the food industry and generates a turnover of over five million Euros (ICEX, 2014). It is also worth noting that Spain is the second largest wine exporter in the world in terms of volume and third in terms of value. The industry has experienced changes in terms of technology, organization of productive factors and the way of selling products. These aspects are examples of different types of innovation (Pérez-Luño, et al., 2019). Therefore, the purpose of this article is to find out which factors of ACAP that lead to a wine firm's performance.

In line with this research agenda, we gathered data from wine companies in Spain to measure the factors that explain absorptive capacity. There have been several articles on this similar issue (Stasi et al., 2011; Galbreath, 2014) to name a few. These studies found that the ability to share knowledge has different influences. As authors who work on this issue, we see

that this paper will be a great chance to focus on aspects of innovation among Spanish wine industry. Based on that purpose, this research aims to find out whether the existing constructs of ACAP is enough to explain the phenomenon among Spanish wine companies. The result from these studies will contribute to literatures related to new knowledge and innovation capabilities and in the end will to enrich the innovation literature, provide detailed descriptions and provide information for company management policies.

2.2 Literature Review

As discussed in our introduction, absorptive capacity (ACAP) is the institutional capacity to acquire, integrate, incorporate and utilize new knowledge (Cohen and Levinthal, 2015). Other perspectives see capacity as part of organizational processes where it finds, assimilates, changes and exploits knowledge to trigger dynamic organizational capabilities (Zahra and George, 2002). This form of capacity is needed to gather external knowledge to smooth the process of innovation (Volberda et al., 2010; Cohen and Levinthal, 2015). Within a company, absorptive capacity is carried out in various ways. Determine how the organization that leads the R & D itself is better prepared to use data that can be accessed remotely. This shows the purchasing power of R & D association speculations (Damanpour, 1991; Cohen and Levinthal, 2015). Other studies that have strategies that are appropriate to their environmental conditions, they can improve higher performance (Pérez-Luño et al., 2014).

ACAP is also seen as the capacity of the company's ability to gather new external knowledge and assimilate and commercialize it (Lozano, 2014). It is important for companies to gather routines to manage information and influence from sustainable learning within a company (Zahra et al., 2015). Although formalization contributes to the transition capacity realized by the unit as predicted by Jansen et al. (2005), it does not reduce the potential of the unit's absorptive capacity. Well-designed regulations and procedures can provide information

that allows all related parties, especially employees, to search for new knowledge from outside the environment then assimilate it (Adler and Borys, 1996; Lozano, 2014).

The study of Jansen et al. (2005) found that routine tasks increase capacity which are realized by internal working unit. This supports the agreed definition that absorptive capacity is always related to active learning and rich communication (Damanpour, 1991). Recently, more scholars have characterized absorptive capacity as a more useful ability in competitive solutions and knowledge, which can help companies and maintain a competitive advantage. With re-effectiveness and knowledge-based knowledge, companies with high absorptive capacity will agree to change, generating operational functions to improve performance (Jansen et al., 2005; Lozano, 2014; Larrañeta et al., 2007; Krstić and Petrovic, 2011).

Knowledge is one of the most critical factors to improve employees' ability to allocate innovation. Drucker (1988) argued that knowledge changes a person, it occurs when information becomes the basis for action, or collects information that allows a person or institution to take more effective actions from previous actions (Jackson et al., 2014). Nonaka and Takeuchi (1995) categorize knowledge into explicit knowledge, which is something that can be used with words and numbers, and can be delivered in scientific form, specifications, manual, etc. Knowledge of this matter can be immediately passed from one individual to another formally and systematically. ‘Explicit knowledge’ can also be described as a process, method, product design and pattern, adding to the experience of both individuals and society. Knowledge is very personal and difficult to formulate, it is very difficult to communicate or communicate with others. Personal feelings, intuition, body language and physical performance are categorized as the second type of knowledge, which is known as ‘tacit knowledge’ (Larrañeta et al., 2007).

To develop effective abilities in dealing with problems, knowledge is not enough to be used individually (Cohen and Levinthal, 2015). In order for the work to be a ‘center of

innovation' and to assist knowledge from their place of business, organizational research must share the same linguistic and cultural codes (Youtie and Shapira, 2008). Without separating, corporate connections which are strengthened by higher closeness and institutionality, enhance the company's ability to effectively assimilate external information from the citizenship of the accomplices (Lozano, 2014). As a result, ACAP is often seen as a capacity to expand processes in external learning (Franco et al., 2014). Actual measurements and testing of ACAP are still needed further (Volberda et al., 2010). Recently, Zahra and George (2002) and Larrañeta et al. (2007) and Noblet et al. (2011), include four processes of capacity, whose explanation can be seen below:

- Knowledge absorption. Acquiring knowledge is an important part of the capacity building process, because of ways to bring new knowledge into the company.
- Knowledge assimilation. In addition to knowledge acquisition ability, assimilation ability is very important. It is the process to assimilate the meaning of intellectual understanding as a resource and innovation. Assimilation is the process where information (knowledge) gets a certain meaning.
- Knowledge transformation. This is the ability to organize a different set that has been formed and spread in new ways. These scattered new insights will establish as new knowledge and recombination.
- Knowledge exploitation. This one is related to the ability to exploit knowledge used by companies that can publish it in operations and processes. Exploitation of creative applications is seen as expanded knowledge within the company. It includes product prototype launch, idea for new product or patent application.

Furthermore, Noblet et al. (2011) exploited more the constructs of Zahra and George (2002) and found that ACAP is the process to change, improve, and increase knowledge and increase resources. The first two dimensions are further classified as potential ACAP

(PACAP), while the latter two are realized ACAP (RACAP), as also explained by Jansen et al. (2005) and Larrañeta et al. (2007). Knowledge management enhances, absorbs and exploits useful external knowledge which have been the result of the company's business cooperation. The firm must succeed in managing, integrating, and marketing new partnerships and ideas by understanding the facts that a company with good management can work well in such environment (Senge et al., 1999). Surely, the positive effect of knowledge management on the level of absorption of the company is expected. Furthermore, the willingness and benefits of the organization are very important in the company's growth process (Fosfuri and Tribó, 2008).

2.3 Research Methodology

Since this research's purpose is to explain deeper about the level of absorptive capacity within certain numbers of wine companies, we have to include testing an already existing model to be carried out in an empirical research. This section will discuss on the empirical section of the paper. We developed a questionnaire containing a set of questions which were taken from the four dimensions of absorptive capacity proposed by Zahra and George (2002), which are 'knowledge acquisition', 'knowledge assimilation', 'knowledge transformation' and 'knowledge exploitation'. We distributed the questionnaire to over 100 wine companies based in Spain to learn more about which aspects of absorptive capacity are really rooting in their organizations.

As we have explained before, the Spanish wine industry is a mature type of industry, with firms located in various regions in the country (Stasi et al., 2011). We collected data about wine companies in Spain using available archives, interviews with senior managing officers, and data from industry experts before conducting our analysis. The questionnaire was distributed online to 111 companies from total population of 520 Spanish wineries based on the survey we have conducted. For this research, we received responses from 111 directors of

the firms. It is the response rate of 20.77% of the firms in the target population. For the empirical part, quantitative research design was adopted. This type of design allows for the use of structured questionnaire surveys, enabling researchers to generalise their findings from a sample of a population (Creswell, 1994).

For the first descriptive method, EFA, data from indicator variables will be grouped, to see how many factors or latent variables that are formed as results (Fox, 1983; Bou and Satorra, 2007). The main objective is to test whether the indicators are grouped according to their latent variables (constructs). Afterwards, we will test whether the constructs are consistent or not with CFA. With the second type of factor analysis method, we can see the fitness of the formed research model (Fox, 1983).

In order to provide further elaborations, after we received all questionnaires results, we then codified the information. The information was stored in a data base using the help of the Statistical Product and Service Solutions - SPSS (an IBM product since 2009, - Hejase and Hejase, 2013) and AMOS software, as processors of CFA and EFA methods. Using statistical techniques we extracted our indicators from regression model and structural equation methods. We also will evaluate the validity and reliability of our measures. For that purpose, in the next part we are going to split the procedures into two steps. The first one is using EFA as primary analysis, afterwards we will continue with CFA, with the purpose of confirming unidimensionality (fitness of model) and eliminating unreliable items (Hair et al., 2006; Brown, 2014).

2.4 Result and Discussion

First, we conducted an exploratory factor analysis (EFA) to see whether the results conform with the measures elaborated in the previous theories. We only retained the items with factor loadings higher than 0.50 (Bou and Satorra, 2007). The first factor explains the ability to process external knowledge (5 items; a = 0.789). The second covered the ability to process

assimilation (5 items; a = 0.841). The third covered the ability to process transformation (5 items; a = 0.778), and the last one explains the ability to process exploitation (also 5 items; a = 0.708).

2.4.1 Exploratory factor Analysis (EFA) of knowledge acquisition

In table 2.1 below, five measures (AB01, AB02, AB03, AB04 and AB05) defined the knowledge acquisition construct. We can see from the findings that the Cronbach's alpha is higher than 0.70 at 0.789, indicating acceptable level of reliability (Fox, 1983; Hair et al., 2006).

Table 2.1: EFA Result of Knowledge Acquisition

Knowledge Acquisition		**Cronbach's alpha = 0.789**	
Item	**Measure**	**Factor Loading**	**Cronbach level after adjustment**
AB01	Our company maintains frequent contacts with other companies to acquire new knowledge	0.796	-
AB02	The employees of our company meet regularly with employees of other companies	0.836	-
AB03	We gather information about the industry through informal means (e.g. having meals with employees from fellow industries)	0.752	-
AB04	We hardly visited other companies	-0.460	0.820
AB05	Our company regularly organizes meetings with clients or third parties to get new knowledge	0.436	-

The five measures were expected to define the knowledge acquisition. The measure AB04 (We hardly visited other companies) was intentionally designed as reverse question, as once applied by Jansen et al. (2005). It attained factor loadings initially below 0 (-0.460) changed into 0,820 after adjustment. It is still higher than the recommended value of 0.40 (Hair et al., 2006; Pallant, 2013). Sufficient proof of convergent validity was then provided for this construct. An Eigenvalue in the value of 2.650 was established in this factor; this explained

53.009% of the variance in the data. It can, therefore, be indicated that knowledge acquisition is reliable and valid to measure the absorptive capacity in Spanish wine companies' environment.

2.4.2 Exploratory factor Analysis (EFA) of knowledge assimilation capability

Next, five measures (AB06, AB07, AB08, AB09 and AB10) which are elaborated in table 2.2 defined the knowledge assimilation capability construct of absorptive capacity. The findings show that the Cronbach's alpha is higher than 0.70 at 0.874. It that the level of internal reliability is acceptable, as explained by Hair et al. (2006).

Table 2.2: EFA Result of Knowledge Assimilation

Knowledge Assimilation		**Cronbach's alpha = 0.841**	
Item	**Measure**	**Factor Loading**	**Cronbach level after adjustment**
AB06	Our employees contact third parties (consultants, accountants, consultants etc.) to obtain new knowledge	0.441	-
AB07	We are slow to recognize changes in our market (e.g. competition, regulation, demographics)	-0.609	0.791
AB08	Our company quickly recognizes new opportunities to serve our customers	0.883	-
AB09	We quickly analyze and interpret changes in demand	0.906	-
AB10	Our company regularly considers the consequences of changes in demand for new products and services	0.818	-

The measure AB07 (We are slow to recognize changes in our market) was intentionally designed as reverse question, also as adapted from Jansen et al. (2005). The factor loading was initially below 0 (-0.609), but eventually changed into 0.791 after adjustment. Meanwhile, all

other factor loadings were above the recommended value of 0.40 (Hair et al., 2006). An Eigenvalue in the value of 2.834 is the result in this factor, which explains 56.685% of the variance in the data. Therefore, sufficient evidence of knowledge assimilation was provided for this construct.

2.4.3 Exploratory factor Analysis (EFA) of knowledge transformation

In Table 2.3, five measures (AB06, AB07, AB08, AB09 and AB10) defined knowledge transformation capability. The result shows that the Cronbach's alpha was higher than 0.70 at 0.778, indicating acceptable internal reliability. This claim is also recommended by Fox (1983) and Hair et al. (2006). It suggests that factor analysis could be conducted with the data.

Table 2.3: EFA Result of Knowledge Transformation

Knowledge Transformation		**Cronbach's alpha = 0.778**	
Item	**Measure**	**Factor Loading**	**Cronbach Level after Adjustment**
AB11	Employees record and store new knowledge for future reference	0.797	-
AB12	Our company recognizes the usefulness of new external knowledge for existing knowledge	0.747	-
AB13	Our employees hardly share their experiences	0.888	-
AB14	Our company meets periodically to discuss the effect of market trends and product development	0.652	-
AB15	We know clearly how activities should be carried out in our company	0.677	-

Almost all the factor loadings for all practices were greater than the recommended value of 0.70, as suggested by Hair et al. (2006). Although two of them were a little below 0.70 (AB14=0.652 and AB15=0.677), we agreed that the differences were not too significant and

still within the acceptable limit, which is higher than 0.4. Therefore, sufficient evidence of convergent validity was provided for this construct.

2.4.4 Exploratory factor Analysis (EFA) of knowledge exploitation

In Table 2.4, five measures (AB06, AB07, AB08, AB09 and AB10) defined the risk management construct of defining project objectives. The findings indicate that the Cronbach's alpha was greater than 0.70 at 0.708, indicating acceptable internal reliability (Hair et al., 2006). Therefore, the exploratory factor analysis could be conducted with the data.

Table 2.4: EFA Result of Knowledge Exploitation

	Knowledge Exploitation	**Cronbach's alpha = 0.708**	
Item	**Measure**	**Factor Loading**	**Cronbach Level after Adjustment**
AB16	Customer complaints are not heard in our company	0.765	-
AB17	Our company has a clear division of roles, tasks and responsibilities	0.570	-
AB18	We constantly consider how we can exploit our knowledge better	0.674	-
AB19	Our company has difficulties in developing new products and services	0.366	-
AB20	Our employees have a shared understanding of our products	0.690	-

Here, the factor loadings varied in their values. One of them (AB19) have very low value (0.366). Since the value is not higher than the recommended value of 0.40, as suggested by Hair et al. (2006), we decided to exclude it to maintain the robustness of the construct. The overall dimensions have Cronbach Alpha value in the value of 0.829 (which is higher than 0.7). which then explains that the values are adequate for further analysis (Fox, 1983; Hair et al., 2006). The overall EFA analysis of the four constructs can be seen in table 2.5.

Table 2.5: EFA Result of Overall Constructs

Dimensions	Indicators	Cronbach's α	(λi)	Average variance explained
F1: *Knowledge acquisition*	AB01	0.789	0.796	20.602%
	AB02		0.836	
	AB03		0.752	
	AB04		0.820	
	AB05		0.436	
F2: *Knowledge assimilation*	AB06	0.841	0.441*	11.337%
	AB07		0.791	
	AB08		0.883	
	AB09		0.906	
	AB10		0.818	
F3: *Knowledge transformation*	AB11	0.778	0.797	12.947%
	AB12		0.747	
	AB13		0.888	
	AB14		0.652	
	AB15		0.677	
F4: *Knowledge exploitation*	AB16	0.708	0.765	12.088%
	AB17		0.570	
	AB18		0.674	
	AB19		0.366*	
	AB20		0.690	
KMO = 0.829 Barlett test of sphericity = 0.000 Total variance explained = 59.974% λi = Standardized Factorial Loading				

Based on the above table, the EFA phase confirmed four factors that form absorptive capacity, thus followed the existing research such as Zahra and George (2002), Jansen et al. (2005), and others. With a total of 20 question items, the items were also filtered in terms of eligibility for retention. In factor 1, it contains items with standard loading factors lower than 0.5, which are AB04 and AB05. In factor 2, only item AB06 has a standard loading factor lower than 0.5. every item in factor 3 are higher than 0.5, while in factor 4, only item AB19 has a standard loading factor lower than 0.5.

However, Hair et al. (2006) argued that factor loading below 0.5 can still be acceptable as long as the value is still greater than 0.4. afterwards, it is time to eliminate variables that are considered not ‘strong’ enough. Here, they are the ones with low factor loadings, or as Hair

explained as a rule of thumb, the item should have a rotated factor loading of at least |0.4| (meaning ≥ +.4 or ≤ –.4). In this case, we omitted one from the total 20 items, which was AB19 (our company meets periodically to discuss the effect of market trends and product development). The other 19 items were then continued to be processed with Confirmatory Factor Analysis (CFA).

Meanwhile, the average variance explained (AVE) for factor 1 (acquisition capability) is 20.602%, which shows that if its five indicators form one factor, then the factor itself will explain indicator variance which is 20.602%. While factor 2 (assimilation capability) explains 11.337% of the whole construct, factor 3 (transformation capability) with 12.947%, and factor 4 (exploitation capability) with 12.088%. The total variance explained is 59.974% or 0.59, which is slightly higher than limit, which is ≥ 0.5) (Hair et al., 2006).

2.4.5 Confirmatory Factor Analysis (CFA)

Next, we confirm the ACAP construct with Confirmatory Factor Analysis (CFA). The study employed additional fit indices in assessing the viability of the current CFA model. These include CMIN or the Chi-square (x2/df), Normed Fit Index (NFI), Goodness-Of-Fit Index (GFI), the Root Mean Square Error of Approximation (RMSEA), TuckerLewis Index (TLI), Comparative Fit Index (CFI) as supported Incremental Fit Index as shown in Table 2.6. The analysis of the composite reliability of each factor is in acceptable level. The recommended minimum value of each item loading must not be less than 0.7 (≥0.7).

Based on the information we found from the table 2.6, the AVE value of each factor is smaller than the highest correlation value between paired factors, which indicates indecent validation discriminant. Results suggested several important issues. First, the model is proven to be fit, which means that the empirical results already support the theoretical model of Zahra and George (2002). Second, three out of four factors explained by Zahra and George (2002)

and explored by Noblet et al. (2011) was supported in this study. These factors are 'knowledge acquisition', 'assimilation' and 'transformation', while factor 'knowledge exploitation' is left as a questionable factor considering its low **λI** value.

Table 2.6: Confirmatory Factor Analysis (CFA)

	λi	**t-value**	**AVE**	**CR**
F1: *Knowledge acquisition*	-	-	**0.43**	**0.69**
AB01	0.765	-	-	-
AB02	0.806	7.195	-	-
AB03	0.634	5.903	-	-
AB04	0.335*	2.990	-	-
AB05	0.630	6.022	-	-
F2: *Knowledge assimilation*	-	-	**0.50**	**0.69**
AB06	0.289*	-	-	-
AB07	0.477*	2.621	-	-
AB08	0.873	2.954	-	-
AB09	0.941	2.965	-	-
AB10	0.719	2.878	-	-
F3: *Knowledge transformation*	-	-	**0.31**	**0.60**
AB11	0.795	-	-	-
AB12	0.683	5,086	-	-
AB13	0.156*	1,385	-	-
AB14	0.495	4,202	-	-
AB15	0.548	3,345	-	-
F4: *Knowledge exploitation*	-	-	**0,24**	**0,53**
AB16	0.294*	-	-	-
AB17	0.436*	-1,790	-	-
AB18	0.555	-1,999	-	-
AB19	0.533	2,312	-	-
AB20	0.577	-1,879	-	-
Satorra-Bentler Scaled Chi-Squared (X_2) = 388.501; df = 20; p = 0,000 RMSEA and 90% confidence interval of RMSEA = 0.112 (0.097; 0.126) CFI = 0.748 GFI = 0.739 AGFI = 0.669				
Notε: λi = Standardized Factorial Loading; AVE = Average variance extracted; CR = Composite Reliability				

2.5 Conclusion

The initial objective of this descriptive research was to explore and confirm the factors of absorptive capacity (ACAP). The objective of this study was to explore and confirm the factors of ACAP. A great number of researches have been conducted to define outcomes of absorptive capacity. In this research, we intended to explore its factors since factors of ACAP have often been ignored in recent studies. This empirical study measured potential absorptive capacity using an already widely known model by Zahra and George (2002), which afterwards will be measured again for our future empirical research

After analyzing the factors of absorptive capacity argued several studies, most notably by Zahra and George (2002), we found interesting conclusion based on our analyzed result. From the research we conducted out of 111 wine companies in Spain, three factors are empirically proven to be in accordance with the theory, knowledge acquisition, assimilation and transformation. One other factor, knowledge exploitation, does not correspond with our empirical result. Our results reveal that the present study contributes to the reason why certain units are able to acquire and assimilate new external knowledge. However, in this case, the knowledge was not exploited successfully. The possible explanation regarding this result is because capacity in exploiting new knowledge does not always lead to collective efforts. Hence, for further future research there is opportunity for deeper study on sensitivity towards change.

Related to this, we still recommend future research incorporating ACAP constructs, knowledge creating (acquisition) capabilities, knowledge assimilation, knowledge transformation and knowledge exploitation capabilities, as the key determinants to the volume of an enterprise's absorptive capacity. Moreover, in this research, we have discussed and confirmed the statement by conducting our own factor analysis. We have come to the conclusion that using other indicators related to knowledge exploitation capabilities might lead

to more fit research model. However, more rigorous literature review must be conducted beforehand.

This conclusion is also in accordance with the concept of organizational learning that involves individual learning, including the management of mental models by omitting the exposition of assumptions, examining and developing new models (Senge et al., 1999; Lozano, 2014). Collective individual learning will facilitate group learning. In the end, organisational learning, in retrospect, also facilitates group learning (Fosfuri and Tribó, 2008; Lozano, 2014). It emphasizes the role of knowledge management in management capabilities, which should be adapted to the, such as weekly meetings and other social encounters. The implementation of absorptive capacity emphasizes the implementation of such routines in talent management capabilities. Absorptive capacity should be inbuilt in the talent management capabilities of the salesforce in order to create the sufficient abilities for knowledge recognition and knowledge sharing and to create motivation for the employee to commit to the practices that aim towards capability development.

Last but not least, this research still has some limitations. The basic limitation is provided by the scope of the research. When it comes to the knowledge sharing between the subunits, the research does not provide a holistic view of the knowledge sharing processes of the whole organization, instead it focuses on describing the knowledge sharing practices within the organization from the point of view of a single subunit of the organization. Thecompany's ability to obtain and assimilate also has a significant influence on the ability to change and explore knowledge. Ability and capacity needed to be moderated by formal aspects. This study has obstacles concerning those relevant perceptions. Therefore, further research will have to be done as individual analysis within a company.

For more holistic view, the research could have focused on researching the processes of multiple subunits and include the liaison role of the change agents, but it might have changed

the perspective of the research from individual point of view into more organizational view. The second limitation of the research is due to the chosen methodology. In order to examine the process dimension of absorptive capacity, especially in such small team as in the case organization, it is not so easy to make distinctions between the knowledge acquisition, assimilation and transformation and exploitation based on the interviews. In order to research these different stages in detail, a researcher has to be present in the social situations where the acquisition, assimilation and transformation and exploitation takes place. In such small group the whole process might take place in one meeting. After all, despite all limitations, every study about ACAP has the potential for future research seen from macro perspective, since the topic is always updated and fits with the global context.

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Chapter 3:

Innovation as the key to gain performance from Absorptive Capacity and Human Capital

Chapter 3:

Innovation as the key to gain performance from Absorptive Capacity and Human Capital

3.0 Abstract

This study aims to investigate how firms can achieve high levels of organizational performance through innovation, absorptive capacity (ACAP) and human capital (HC). Using a sample of 138 Spanish companies from the wine industry, our findings show that ACAP and HC allow business to more fully capture the benefits of innovation. These results contribute to the ACAP literature by demonstrating its importance as an antecedent of HC, innovation and performance. It also contributes to the Human Resources Management (HRM) literature by explaining the role of HC between the acquisition of external knowledge (ACAP) and innovation and performance. It also contributes to the innovation literature through the analysis of its central role to gain performance and competitiveness. Finally, it contributes to the Resources Based View of the firm (RBV) by showing how a bundle of resources and capabilities (ACAP, HC and innovation) can be seen as good drivers of performance and, by extension, of a competitive advantage.

Keywords: Human Capital (HC), Absorptive Capacity (ACAP), Innovation, Performance, Resources Based View (RBV)

3.1 Introduction

Over the last two decades, research has shown a strong relationship between innovation and competitiveness (Carneiro, 2000; Cantwell, 2005; Pérez-Luño, et al., 2014; Petrakis et al., 2015). Interest in this type of research has been growing with the aim to identify the best method to improve the innovative capability of a firm (Damanpour, 1991; Galunic and Rodan,

1998). Therefore, it is important to identify the internal and external factors that have positive effects on such behaviour (Zhou, 2006; López-Cabrales, et al., 2009). Some authors have acknowledged the involvement of culture as a long-term strategic instrument (Petrakis et al., 2015); others emphasize the importance of knowledge production (Farinha et al., 2016; Roper and Love, 2018; Dabić et al., 2019), absorptive capacity (Dabić et al., 2019; Jansen et al., 2005; Volberda et al., 2010; Vlačić et al., 2019), human resources (López-Cabrales, et al., 2009; Franco et al., 2014; Roberts et al., 2011), and even different regulations in each country in which the companies are located (Zhao and Sun, 2016). Furthermore, there is a need to understand whether it is innovation that leads to competitiveness, whether this competitiveness is reached because of the capabilities that companies develop in order to innovate, or whether it is a combination of both.

This research is framed within the resource-based view (RBV) theory, whose main research topic is related to the kinds of resources and capabilities that lead to sustainable competitive advantage (Wernerfelt, 1984; Barney, 1991). In this direction, among the possible internal factors to take into account, knowledge, skills and abilities (KSA) appear as key resources for innovation (López-Cabrales et al., 2009). It has also been argued that external knowledge acquired from the company's absorptive capacity (ACAP) is needed in order to update the employees' KSA that are needed to develop innovations and to increase performance (Miron-Spektor et al., 2018; Roper and Love, 2018).

Innovation requires the exploration of new ideas as well as the realization of new solutions for organizational change (Janssen, 2001). Therefore, the success of companies is related to their ability to manage knowledge (Salzer-Mörling and Yakhlef, 1999). In order to have knowledge to manage, individuals (and companies, by extension) require external knowledge. The literature has acknowledged that ACAP, defined as the ability of companies to acquire, assimilate and exploit knowledge, is the best way of sourcing external knowledge

and that it is an important antecedent of innovation (Cohen and Levinthal, 1989; Zahra and George, 2002; Vlačić et al., 2019).

The literature has shown that human resource management (HRM) has positive linkages to innovation (López-Cabrales, et al., 2009). Some researchers have agreed that HRM includes knowledge, skills, and abilities (KSA) within an individual, which are grouped as human capital (HC). HC has been considered to be one of the main positive outputs of HRM for innovation and higher performance (López-Cabrales, et al., 2009). There is the assumption that a company's innovation and performance will improve if its employees share knowledge, effective practices, experiences, preferences, and learning (Roper et al., 2017).

Innovation can be seen as the successful exploitation of new ideas which incorporate novelty and utility (Alegre et al., 2006; Pérez-Luño, et al., 2011). Companies willing to innovate need individuals with expertise and knowledge to develop such new ideas (Anand, et al., 2007). Therefore, to achieve such innovation, firms need competent and innovative employees who are willing to apply new knowledge and experiment (Costa and McCrae, 1992, Diaz-Fernandez et al., 2014).

Based on the previous discussion, the research question that we address in this paper is: To what extent is performance improved through resources and capabilities such as ACAP, HC, and innovation? This research question aims to analyse the relationship between HC, ACAP, innovation and performance to try to shed light on two research gaps. The first is, as discussed at the beginning of this introduction, to understand whether competitiveness is achieved through innovation or through the capabilities that companies develop in order to innovate, or through the combination of both. The second would be to identify to what extent ACAP and HC are determinants of innovation and / or performance. With these aims in mind, we will try to understand to what extent ACAP is necessary to better exploit the required HC to develop innovations and to enhance performance.

This study will result in three main contributions. The first contribution is related to the relationship, on the whole, among ACAP, HC, innovation and performance. Among the different types of innovation, this research focuses on technological product innovation. Therefore, our findings expand the innovation literature by providing a more profound and direct analysis of the predictors of product innovation. That is, while previous research has tried to relate the different dimensions of ACAP (e.g. Jansen et al., 2005; Zahra and George, 2002) and the dimensions of HC with regards to innovation and performance (e.g. López-Cabrales, 2009; Flor et al., 2018), we believe that it is through the global variables that we can really understand the full interrelationship.

The second contribution focuses on the lack of systematic empirical support received by the RBV (Newbert, 2007; López-Cabrales et al., 2009). For this reason, by demonstrating that a number of resources (knowledge materialized in HC and innovation) and capabilities (ACAP and HC) can be seen as valuable drivers of competitive advantage, this study expands the empirical approach in support of the theoretical section discussed in this paper. Finally, we find similar results for the empirical analysis of ACAP, HC and innovation with objective and subjective measures of performance. This is an important contribution that shows that managers are able to perceive their results in real work situations.

The study is structured as follows. First, the conceptual framework and the hypotheses of the study are presented. Next, the methods are explained, and are followed by the results. The last section of this study presents the discussion.

3.2 Literature Review

3.2.1 Absorptive capacity (ACAP) as an antecedent of Human capital (HC)

ACAP is one of the most important theories that has emerged in organizational research in the past 30 years. Cohen and Levinthal (1989) defined ACAP as "a firm's ability to identify,

assimilate, and exploit new knowledge". Since then, there have been many other studies that explore the ACAP concept and its dimensions. Table 3.1 summarizes research from more than 900 peer-reviewed academic papers published on the topic:

Table 3.1: Research on ACAP

Authors	Journal and Years Published	ACAP as Dimension
Keller	Journal of development economics - 1996	UNIDIMENSIONAL ANALYSIS OF ACAP
Lane, Koka, and Pathak	Academy of Management Review - 2006	
Rodríguez-Castellanos, Hagemeister, and Ranguelov	European Planning Studies - 2010	
Vasudeva and Anand	Academy of Management Journal - 2011	
Hotho, Becker-Ritterspach and Saka-Helmhout	British Academy of Management - 2012	
Ritala and Hurmelinna-Laukkanen	Journal of Product Innovation Management - 2013	
Aryasa, Wahyuni, Sudhartio, and Wyanto	Academy of Strategic Management Journal - 2017	
Scuotto, Del Giudice and Carayannis	Journal of Technology Transfer - 2017	
Hernandez-Perlines	Journal of Family Business Management - 2018	
Crescenzi and Gagliardi	Research Policy - 2018	
Authors	**Journal and Years Published**	BIDIMENSIONAL ANALYSIS OF ACAP
Jansen, Van Den Bosch, and Volberda	The Academy of Management Journal - 2005	
Larrañeta, Zahra, and Galán	Frontiers of Entrepreneurship Research - 2007	
Fosfuri and Tribó	Omega - 2008	
Volberda, Foss and Lyles	Organization Science - 2010	
Leal-Rodríguez, Ariza-Montes, Roldán, and Leal-Millán	Journal of Business Research - 2014	
Franco, Marzucchi, and Montresor	Industry and Innovation, 2014	
Larraneta, Galan and Aguilar	Journal of Technology Transfer - 2017	
Enkel, Heil, Hengstler, and Wirth	Technovation - 2017	
Flor, Cooper, and Oltra	European Management Journal - 2018	
Mariano and Al-Arrayed	European Journal of Management - 2018	
Limaj and Bernroider	Journal of Business Research - 2019	
Authors	**Journal and Years Published**	ANALYSIS OF ACAP USING THREE DIMENSIONS
Lane and Lubatkin	Strategic Management Journal - 1998	
Lichtenhaler	The Academy of Management Journal - 2009	
Zobel	Journal of Product Innovation Management - 2017	
Stulova and Rungi	Journal of High Technology Management Research - 2017	
Authors	**Journal and Years Published**	ANALYSIS OF ACAP USING FOUR DIMENSIONS
Cohen and Levinthal	The Economic Journal - 1989	
Cohen and Levinthal	Administrative Science Quarterly - 1990	
Zahra and George	Academy of Management Review - 2002	
del Carmen Haro-Domınguez, Arias-Aranda, Llorens-Montes, and Ruız Moreno	Technovation - 2007	
Camisón and Forés	Journal of Business Research - 2010	
Jiménez-Barrionuevo, Garcıa-Morales, and Molina	Technovation - 2011	
Krstić and Petrović	Economics and Organization - 2011	
Backmann, Hoegl, and Cordery	Journal of product innovation management - 2015	
Vlačić, Dabić, Daim and Vlajčić	Technological Forecasting and Social Change - 2019	

Source: Authors' own elaboration

The information used to develop Table 3.1 leads us to conclude that in most of the literature, ACAP consists of four dimensions, which are built on each other (Zahra and George, 2002; Vlačić et al., 2019): The first one is knowledge acquisition, which is the way to bring new knowledge into an enterprise (Zahra and George, 2002; Krstić and Petrovic,

2011; Vlačić et al., 2019). The second dimension refers to the institutional capacity to examine or review past knowledge, as well as to synthesize, and combine knowledge gained from external sources (also known as knowledge assimilation capability). It is related to the understanding of knowledge as an economic resource for generating value and innovations (Zahra and George, 2002; Krstić and Petrovic, 2011, Vlačić et al., 2019). The third dimension is the institutional capacity to develop and improve routines that facilitate the incorporation of existing knowledge with acquired knowledge, also known as knowledge transformation capability. Knowledge transformation also includes joining previously scattered sets of knowledge and recombining them (Zahra and George, 2002; Krstić and Petrovic, 2011, Vlačić et al., 2019). The last dimension is the institutional capacity to refine, expand, and elevate existing competencies or create new ones by combining acquired knowledge. This dimension is also known as knowledge exploitation capability, and refers to the ability of a firm to incorporate knowledge in its operations and processes (Zahra and George, 2002; Krstić and Petrovic, 2011, Vlačić et al., 2019).

Some authors have proposed to group the four dimensions into two structures: on the one hand, potential absorptive capacity (PAC or PACAP), which includes the ability to acquire and assimilate knowledge, and, on the other hand, realized absorptive capacity (RAC or RACAP), which includes the ability to transform and exploit knowledge (Ali and Park, 2016; Vlačić et al., 2019). The level of ACAP itself is a function of the organization's existing resources, existing tacit and explicit knowledge, internal routines, management competences, and culture (Larrañeta et al., 2007).

Most of the research has related the different dimensions (4 or 2) of ACAP with different outputs. However, based on the idea that the four dimensions are built on each other and that, in sum, ACAP represents the firm's willingness to create new knowledge (Cohen and Levinthal, 1989; Lane, et al., 2006), we believe that analysing ACAP as a single construct

made by the four or two dimensions proposed by previous literature may help to better understand the connection between ACAP, HC, innovation and performance.

It is believed that firms with higher ACAP have greater ability to detect changes, to explore available alternatives and solutions, and thus to exploit innovation to meet its needs (Zahra and George, 2002; (Bharati et al., 2014). On the one hand, some research results show a close relationship between ACAP and innovation (Fosfuri and Tribó, 2008). On the other hand, different researchers have shown that ACAP contributes to a firm's performance both directly and indirectly (Lane et al., 2006; Bharati et al., 2014). That is, for example, using the RBV, Davidsson and Honig (2003) explain that in order to be competitive and increase performance, companies need ACAP. However, we propose in this paper that the influence of ACAP on innovation and performance is through its influence on HC. That is, we believe that ACAP gives the necessary knowledge to employees to reinforce their HC. This idea comes from the analysis of its definition, that is, the "ability to recognize the value of new knowledge, assimilate it, and apply it to commercial ends" (Cohen and Levinthal, 1990). Therefore, by the development of this ability to recognize the value of new knowledge, assimilate it and apply it, the people involved increase their HC.

Some ACAP literature supports the idea that the technological aspect of a company is the most important for better performance in R&D. For example, Vlačić et al. (2019) pointed out from their result in technology-driven companies that if ACAP level is higher, business performance in regularly performed R&D activities will tend to be higher. However, Rodríguez-Castellanos et al. (2010) believe that HC is more important than the technological and relational capital. To maximize HC's contribution to company effectiveness and growth, strategic policies on acquisition, development, and capital retention are needed (Harris and Kor, 2013). Therefore, we think that in order to take advantage of ACAP for innovation (or

any other purposes), companies need HC that exploits the knowledge gained through ACAP. Then, as explained in the next section, this HC will have a positive impact on innovation.

Thus, we propose our first hypothesis:

H1: There is a positive relationship between ACAP and HC.

3.2.2 Human capital (HC) as an antecedent of innovation

Innovation is the successful application or execution of new ideas (Alegre et al., 2006; Pérez-Luño, et al., 2011). It has been accepted that a firm's ability to generate innovation is linked to the knowledge of its HC (Laursen, 2002; Foss, 2007). Therefore, the most distinctive and inimitable resource that companies have is people's knowledge collected in the company's HC (López-Cabrales, 2009). HC can be defined as the set of knowledge, skills and abilities that individuals have and use at work (Wright and McMahan, 2011). HC has also been defined as the collective value of knowledge, skills, and ability as well as the life experiences and motivation of an organizational workforce (Bogdanowicz and Bailey, 2002; Subramaniam and Youndt, 2005).

TABLE 3.2: Research on HC

Titles	Authors	Journal and Publication Year
Firm resources and sustained competitive advantage	Barney	Journal of Management - 1991
Normal personality assessment in clinical practice: The NEO Personality Inventory	Costa, and McCrae	Psychological assessment - 1992
Human resource issues and technology transfer	Tung	International Journal of Human Resource Management - 1994
Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms	Gimeno, Folta, Cooper, and Woo	Administrative science quarterly - 1997
The human resource architecture: Toward a theory of human capital allocation and development	Lepak and Snell	Academy of management review - 1999
Mortality decline, human capital investment, and economic growth	Kalemli-Ozcan, Ryder, and Weil	Journal of development economics - 2000
MNC knowledge transfer, subsidiary absorptive capacity, and HRM	Minbaeva, Pedersen, Björkman, Fey, and Park	Journal of international business studies - 2003
Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction	Janssen and Van Yperen	Academy of management journal - 2004
Predicting perceived employability: human capital or labour market opportunities?	Berntson, Sverke, and Marklund	Economic and Industrial Democracy - 2006
Technology entrepreneurs' human capital and its effects on innovation radicalness.	Marvel and Lumpkin	Entrepreneurship Theory and Practice - 2007
Empirical research on the resource-based view of the firm: an assessment and suggestions for future research	Newbert	Strategic management journal - 2007

Titles	Authors	Journal and Publication Year
System perspective of knowledge management, organizational learning, and organizational innovation	Liao and Wu	Expert Systems with app - 2010
Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance	Tsai	Academy of management journal - 2011
Exploring human capital: putting 'human' back into strategic human resource management	Wright and McMahan	Human Resource Management Journal - 2011
Rethinking sustained competitive advantage from human capital	Campbell, Coff, and Kryscynski	Academy of Management Review - 2012
Expatriate knowledge transfer, subsidiary absorptive capacity, and subsidiary performance.	Chang, Gong and Peng	Academy of Management Journal - 2012
The Role of Human Capital in Scaling Social Entrepreneurship	Harris and Kor	Journal of Management for Global Sustainability - 2013
Measuring the impact of innovative human capital on small firms' propensity to innovate	McGuirk, Lenihan, and Hart	Research Policy - 2015
Human capital in social and commercial entrepreneurship. Journal of Business Venturing, 31(4), 449-467.	Estrin, Mickiewicz, and Stephan	Journal of Business Venturing - 2016
Core requirements of knowledge management implementation, innovation and organizational performance	Al-Hakim and Hassan	Journal of Business Economics and Management – 2016
How do employment relationships enhance firm innovation? The role of human and social capital	Bornay-Barrachina, López-Cabrales, and Valle-Cabrera	The International Journal of Human Resource Management – 2017
Integrating strategic human capital and strategic human resource management	Boon, Eckardt, Lepak, and Boselie	The International Journal of Human Resource Management - 2018
Human Capital Acquisition and Organizational Innovation: A Temporal Perspective	Wang and Zatzick	Academy of Management Journal - 2019

Source: authors' own elaboration

Considering the HC approach, the novelty and value of employee's knowledge are the most important aspects for innovation (Lepak and Snell, 1999; López-Cabrales, 2009). The value of knowledge means the potential knowledge to increase the efficiency and effectiveness of a company, take advantage of market opportunities and neutralize potential threats (Lepak and Snell, 2002). An employee must possess skills and firm-specific knowledge that are irreplaceable and unique (Barney, 1991). Since creative individuals have to deal with ambiguous problems and will need to exploit the knowledge reached through the company's ACAP, human capital is required to display strong, valuable, and unique knowledge (2000, López-Cabrales et al., 2009). Therefore, in order to make sure innovation takes place, companies may leverage valuable and unique HC to develop organizational expertise for creating new products and services (Damanpour and Schneider, 2006). Therefore, we propose our second hypothesis:

H2: There is a positive relationship between HC and innovation.

3.2.3 Innovation as an antecedent of performance

An understandable explanation for the effect of knowledge on competitiveness is suggested in the RBV of the firm. The classical approach of RBV argues that a firm can build competitive

advantages based on valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). Previous literature has demonstrated a strong relationship between innovation and performance (e.g. Carneiro, 2000; Pérez-Luño, et al., 2014; Petrakis et al., 2015):

TABLE 3.3: Research on Innovation and performance

Titles	Authors	Journal and Years Published	Innovation Relationship with Performance
Innovation and Learning: The Two Faces of R&D	Cohen and Levinthal	Economic Journal - 1989	Various R&D implications for the analysis of the adoption and diffusion of innovations
Successful industrial innovation: critical factors of the 1990s	Rothwell	R&D Management - 1992	To manage innovation, managerial flexibility is required, also flexible organizational structure to shift towards new generation of innovation process
Industrial innovation and firm performance: A re-conceptualization and exploratory structural equation analysis	Soni, Lilien and Wilson	International Journal of Research in Marketing - 1993	Innovativeness results in better firm performance; intermediate levels of market concentration result in more innovativeness and better performance than more extreme levels; smaller firms are more innovative and perform better than larger firms, and less diversified firms perform better than highly diversified firms
The illegitimacy of successful product innovation in established firms	Dougherty and Heller	Organization Science - 1994	Successful product innovators experience as many instances of illegitimacy as others, but creatively reframed their activities more often for legitimation
Innovation: The core competence	Higgins	Planning Review - 1995	Competitive and successful performance is achieved through an organizational culture that fosters creativity and turns creativity into innovation
Differential Potency of Factors Affecting Innovation Performance in Manufacturing and Services Firms in Australia	Atuahene-Gima	Journal of Product Innovation Management - 1996	Factors affecting innovation performance have vastly different potencies between the two types of firms. The most important factors affecting new service performance appear to be the extent of the firm's focus on innovation
Winning through innovation	Tushman	Strategy and Leadership- 1997	It is required to manage inherent inconsistencies consistently if firms want to manage innovation and change
Market versus corporate structure in plant-level innovation performance	Love and Ashcroft	Small Business Economics- 1999	The positive effect of R&D arises principally from increasing the probability of a plant becoming an innovator, rather than from making a plant more innovation intensive
Technological acquisitions and innovation performance of acquiring firms: A longitudinal study	Ahuja and Katila	Strategic Management Journal - 2001	Within technological acquisitions, absolute size of the acquired knowledge base enhances innovation performance, while relative size of the acquired knowledge base reduces innovation output
Product innovation strategy and the performance of new technology ventures in China	Li and Atuahene-Gima	Academy of Management - 2001	Product innovation strategy's effect on performance was affected by environmental turbulence and institutional support

Titles	Authors	Journal and Years Published	Innovation Relationship with Performance
Learning orientation, firm innovation capability, and firm performance	Calantone, Cavusgil and Zhao	Industrial Marketing Management - 2002	No proven moderating effect of organization age on the relationship between learning orientation and performance, also that learning orientation and innovation are distinct constructs
New human resource management practices, complementarities and the impact on innovation performance	Laursen and Foss	Cambridge Journal of Economics - 2003	Seven out of nine variables matter almost equally for the ability to innovate
Exploring the relationship between knowledge management practices and innovation performance	Gloet and Terziovski	Journal of Manufacturing Technology Management - 2004	Knowledge management contributes to innovation performance when a simultaneous approach of "soft HRM practices" and "hard IT practices" are implemented
Knowledge management, innovation and firm performance	Darroch	Journal of Knowledge Management - 2005	A firm with a knowledge management capability will use resources more efficiently and so will be more innovative and perform better
Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators	Jansen, Van Den Bosch, and Volberda	Management Science - 2006	Internal and external factors affecting exploratory and exploitative innovation, also performance.
Market Knowledge Dimensions and Cross-Functional Collaboration: Examining the Different Routes to Product Innovation Performance	De Luca and Atuahene-Gima	Journal of Marketing - 2007	The effects of market knowledge depth and cross-functional collaboration on product innovation are negatively moderated by knowledge integration mechanisms
Assessment of innovation and performance in the fruit chain: The innovation-performance matrix	Trienekens, van Uffelen, Debaire and omta	British Food Journal - 2008	The review of supply-chain innovation and performance indicators and models and methods used to assess performance and innovation within fruit supply industry
Strategic human resource practices and innovation performance — The mediating role of knowledge management capacity	Chen and Huang	Journal of Business Research - 2009	Knowledge management capacity plays a mediating role between strategic human resource practices and innovation performance
System perspective of knowledge management, organizational learning, and organizational innovation	Liao and Wu	Expert Systems with app - 2010	Analyzing knowledge management, organizational learning, and the relationship to innovation
Offshoring of R&D: Looking abroad to improve innovation performance	Nieto and Rodrıguez	Journal of International Business Studies - 2011	There is positive relation between offshoring and innovation performance, with a greater effect on product than on process innovations
Inbound Open Innovation Activities in High-Tech SMEs: The Impact on Innovation Performance	Parida, Westerberg, and Frishammar	Journal of Small Business Management - 2012	Different open innovation activities are beneficial for different innovation outcomes
Process innovation strategy in SMEs, organizational innovation and performance: A misleading debate?	Hervas-Oliver, Sempere-Ripoll and Boronat-Moll	Small Business Economics - 2014	Process innovation strategy is mainly shaped by the acquisition ofembodied knowledge, which acts as a key mechanism for countering firms' weak internal capabilities
The Impact of Absorptive Capacity, Organizational Inertia on Alliance Ambidexterity and Innovation for Sustained Performance.	Aryasa, Wahyuni, Sudhartio, and Wyanto	Academy of Strategic Management Journal - 2017	ACAP relation with Product Innovation, Process Innovation and Organizational Performance

Titles	Authors	Journal and Years Published	Innovation Relationship with Performance
Innovation Offshoring, Institutional Context and Innovation Performance: A Meta-Analysis	Rosenbusch, Gusenbauer, Hatak, Fink and Meyer	Journal of Management Studies - 2019	Innovation offshoring is related positively to innovation performance. This relationship is moderated by differences in the institutional environments across countries

Source: authors' own elaboration

In this paper, we believe that the absorptive knowledge used by valuable and unique HC to develop innovations will lead to higher performance and competitive advantages. Even more, we believe that this relationship will be similar for objective and subjective measures of performance. Therefore, we propose our third hypothesis:

H3: There is a positive relationship between innovation and performance.

The proposed model and our hypotheses are represented as figure 3.1:

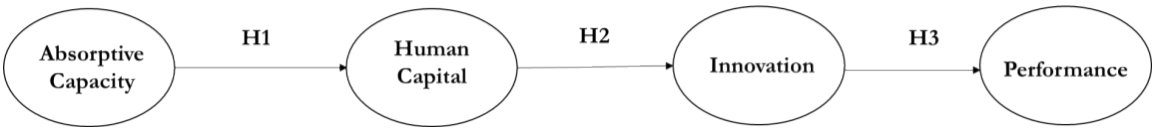

Figure 3.1: The relationship between HC, ACAP, innovation and performance

Source: Authors' own elaboration

3.3 Research Methodology

3.3.1 Sample and Data Collection

We use a sample of Spanish wineries to conduct our analysis as they represent a population of firms where ACAP, HC, and innovation are salient performance dimensions. That is, although the wine industry is seen as very traditional, the current situation has made it to continuously innovate in products, services, production processes, management and business model. In relationship to product innovation, wineries, both large and small, are not only changing the alcoholic graduation of their wines (e.g. Familia Bodegas Torres and Bodegas Robles), but also

their flavours, to make them softer (e.g. Bodegas Peñafiel), and are introducing new products related to wine (among others).

In 2013, we surveyed a population of 520 Spanish wineries. We received responses from 138 directors of the firms (response rate of 29%). In order to safeguard against bias and verify the quality of the responses, we surveyed secondary respondents (enologists) of 33 firms, allowing us to establish inter-rater reliability. Objective information about the performance and number of workers was obtained from external sources, reducing the risk of common method bias. This data is available through the SABI/AMADEUS database.

3.3.2 Variables

Many of the constructs included in the study were measured by multi-item scales. Several steps were taken to complete the validity and receive data. First, we conducted the pre-test of measures in 25 interviews with managers. We asked them to revise the survey before returning it in order to ensure the clarity of the questions and to ascertain whether the scale was appropriate for this research. We then revised each requested item before sending the questionnaire.

To measure absorptive capacity (ACAP), we adapted the scale items developed by Jansen et al., (2005) for large companies to our sample. The items have proven to be effective in measuring ACAP in small firm environments, as shown in Fernhaber and Patel (2012) and Tzokas et al. (2015) among others. For human capital (HC), we adapted the scale items proposed by Lepak and Snell (2002) and López-Cabrales et al., (2009). For innovation, we adapted the scale items proposed by Zhang et al., (2015), which has also been used in other similar studies in small firm environments (e.g. Mamun et al., 2018, Ruiz-Ortega et al., 2018). Finally, to measure performance, we adapted the scale proposed by Zahra (1996) to measure subjective performance, and to measure objective performance we used return on assets (ROA)

from 2016. The time lag between innovation and objective performance guarantees that the measured ROA has been reached from the innovations developed some years before (Pérez-Luño et al., 2014; Agostini et al., 2015) We controlled for firm size (number of employees) and for family firm ownership (given the big proportion of this kind of company within this industry).

3.3.3 Measurement model

We conducted a preliminary study of scale dimensionality by performing an exploratory factor analysis. The proposed scale of ACAP was extracted in two dimensions. The items related to knowledge acquisition and knowledge assimilation were loaded on the first factor, while the items that measure knowledge transformation and knowledge exploitation conformed the second factor. Both extracted dimensions explained 66.31% of the variability. With regard to the HC scale, the results showed a multidimensionality structure with two factors, value and uniqueness, which explained 66.16% of the variability. The innovation and subjective performance scales were one-dimensional. We eliminated two items of human capital uniqueness since their factor loadings were smaller than 0.6.

The measurement model was estimated using partial least squares based on the principal component-based estimation approach (Chin et al., 2013). As we have considered ACAP and HC as second-order factors, we applied a two-stage approach for integrating the higher-order models into the measurement model (Becker et al., 2012). In the first stage, we estimated the items from the first to the second-order factors, and the latent variables scores were used as indicators of the reflective higher-order constructs estimation. The factor loadings of the first-order constructs (Knowledge Acquisition, Knowledge Assimilation, and Knowledge Transformation and Exploitation) to reflect the higher-order construct of ACAP showed factor loadings that were significant and with high values (β=0.940** and β=0.925**).

Similarly, the first-order dimensions of Value and Uniqueness showed significant and high factor loading to second-order constructs of Human Capital (β=0.938** and β=0.791**).

As we consider all the dimensions as reflective constructs, we evaluated their internal consistency and validity according to the procedures suggested by Hair et al. (2014). Internal consistency of the dimensions was evaluated considering three indicators: Cronbach's alpha indicator exceeded the recommended threshold of 0.7 (Nunnally and Berstein, 1994), the composed reliability coefficient was greater than 0.7 (Anderson and Gerbing, 1988), and the average variance extracted (AVE) was over 0.5 (Fornell and Larcker, 1981).

TABLE 3.4: Descriptive statistics and scale correlations (subjective and objective performance)

Constructs	1.	2.	3.	4.	5.	6.	7.
1.Absorptive Capacity	0.932						
2. Human Capital	0.499	0.867					
3. Innovation	0.232	0.274	0.824				
4.Subjective Performance	0.355	0.306	0.255	0.810			
5.Objective Performance	-0.036	-0.064	-0.292	0.052	N.A.		
6. Firm Size	0.087	-0.089	0.011	-0.045	-0.076	N.A.	
7. Family business	-0.065	-0.068	-0.021	0.176	0.102	-0.021	N.A.
The elements on the main diagonal represent the square root of the AVE							
Statistics							
Mean	3.529	3.522	3.504	3.171	0.320	0.320	N.A.
SD	0.590	0.650	0.855	0.812	0.339	0.338	N.A.
Cronbach's Alpha	0.850	0.712	0.904	0.871	N.A.	N.A.	N.A.
Composite reliability	0.930	0.858	0.927	0.905	N.A.	N.A.	N.A.
Average variance extracted (AVE)	0.870	0.752	0.679	0.657	N.A.	N.A.	N.A.

We analysed scale validity for the constructs. We confirm convergent validity as all the reflective indicators, and the reflective construct for ACAP and HC showed significant and

high standardized loadings (>0.6; p-value<0.000) (Steenkamp and Van Trijp, 1991). We checked discriminant validity by linear correlation between each pair of dimensions. These values were less than the square root of the AVE in the scales, showing evidence that each reflective construct related stronger to its own scales than to the others (table 3.4). We analysed this validity in depth with the heterotrait-monotrait ratio of correlations (HTMT). These values, shown in Table 3.5, were lower than the threshold of 0.9 (Henseler et al., 2015).

TABLE 3.5: Heterotrait-Monotrait Ratio of Correlations (HTMT)

Constructs	1.	2.	3.	4.	5.	6.
1.Absorptive Capacity						
2. Human Capital	0.609					
3. Innovation	0.263	0.326				
4. Subjective Performance	0.421	0.398	0.270			
5. Objective Performance	0.040	0.076	0.303	0.088		
6. Firm Size	0.095	0.094	0.041	0.098	0.076	
7. Family business	0.072	0.093	0.053	0.421	0.102	0.021

3.4 Results and Discussion

The structural model was estimated and assessed by 5000 bootstrap runs. According to Henseler et al. (2009) the use of this level of bootstrapping provides standard errors and t-statistics to evaluate the significance of the structural coefficients. As we measured performance from two different perspectives, we developed two models to test the relationship chain effects on both subjective and objective performance. Table 3.6 and Table 3.7 show the direct and indirect effects, with the t-stats associated to assess the strength of the causal relationships between the endogenous and exogenous variables, and R_2 values to evaluate predictability of the model.

TABLE 3.6: Estimation of the causal relationship chain on Subjective Performance

Direct effects	**β (t-Stat)**	**R_2**
H_1. Absorptive Capacity→Human Capital	0.499** (8.309)	0.249
H_2. Human Capital→Innovation	0.274** (3.357)	0.095
H_3. Innovation→Subjective Performance	0.259** (3.038)	0.100
Indirect effects		
Absorptive Capacity→Innovation	0.137** (2.937)	
Absorptive Capacity→Subjective Performance	0.035+ (1.948)	
Human Capital→Subjective Performance	0.071* (2.109)	
Controls		
Firm Size→ Subjective Performance	-0.044 (0.429)	
Family business→Subjective Performance	0.180* (2.198)	
+: significant at p<0.10; *: significant at p<0.05; **: significant at p<0.01		

The results for the estimated coefficients of causal relationships showed a significant effect of Absorptive Capacity on Human Capital (β=0.499**; p-value<0.01), supporting H_1. As we specified in H_2, the Human Capital construct was significantly related to innovation (β=0.274**; p-value<0.05). Finally, H_3 predicted that Innovation had a significant and positive impact on Performance. The results provided support the effect of Subjective Performance (β=0.259**; p-value<0.05) and Objective Performance (β=0.289**; p-value<0.05). We have also included Robustness analyses as an Appendix to show that our proposed path is what better explain the ACAP, HC, innovation, performance relationship and to show that the results are similar for 2016 and 2015 performance measure.

TABLE 3.7: Estimation of the causal relationship chain on Objective Performance

Direct effects	**β (t-Stat)**	**R_2**
H_1. Absorptive Capacity→Human Capital	0.499** (8.309)	0.249
H_2. Human Capital→Innovation	0.274** (3.357)	0.095
H_3. Innovation→Objective Performance	0.289** (3.358)	0.100

Indirect effects	
Absorptive Capacity→Innovation	0.137** (2.937)
Absorptive Capacity→ Objective Performance	0.040* (2.145)
Human Capital→ Objective Performance	0.079* (2.360)
Controls	
Firm Size→ Objective Performance	-0.071 (0.746)
Family business→ Objective Performance	0.096* (1.215)
+: significant at p<0.10; *: significant at p<0.05; **: significant at p<0.01	

The fit indexes for both casual models $SRMR_{subject\_perf}$=0.066 and $SRMR_{object\_perf}$=0.058 were adequate as they were lower that the cut-off point of 0.08 (Hu and Bentler, 1999). According to Henseler et al. (2016), we assess the global model goodness of fit in order to avoid potential problems with bootstrapping results. Our results ($SRMR_{subperfo}$=0.066 and $SRMR_{objperfo}$=0.058) showed that the fits were adequate in line with bootstrapping indexes.

3.5 Conclusion

There is a need to identify whether it is innovation that leads to competitiveness or whether it is competitiveness that is reached by means of the capabilities that companies develop in order to innovate. Based on this and other assumptions, this paper aimed to provide a more elaborate analysis of the relationship between ACAP, HC, innovation and performance using unidimensional constructs to better shape their full relationships. There are previous studies connecting these phenomena. However, most of the research still falls short in explaining the existing relationships among all of them (Lane et al., 2006). Even more, as the majority of research has evaluated the different dimensions of these concepts, it has been difficult to find clear conclusions.

The explanation of how HC and ACAP enhance innovation and performance could help expand the RBV, HRM and innovation literature. Specifically, this paper has made five main

contributions. The first contribution is related to the existing relationship, on the whole, among HC, ACAP, and innovative activity. Even more, our results have shown that the ACAP, HC, innovation and performance path is the best way of explaining how to take advantage of ACAP and HC to innovate and outperform. Our findings improve the innovation literature by providing deeper and more direct analysis of the predictors and consequences of innovation. That is, while previous research has related the different dimensions of ACAP and HC with innovation and performance (e.g. López-Cabrales, 2009; Flor et al., 2018), we believe that it is through the global relationship that we really see the full interrelationship. The second contribution, which enriches the HRM literature, concerns the consequences of HC. That is, in order to make sure innovation takes place, companies need to leverage HC to develop organizational expertise for creating new products and services (Damanpour and Schneider, 2006). Organizations must define and apply appropriate human resource management (HRM) practices for managing people and link them to the firm's core capabilities (Peltokorpi and Tsuyuki, 2006). The third contribution is related to ACAP. While previous research has revolved around a discussion about dimensionality and the relation of each of the dimensions to innovation, this paper has shown that the global measure of ACAP has an important influence on innovation and HC. The fourth contribution is related to performance. Having found that both of our variables have the same influence on the objective and subjective measures of performance, this gives robustness to our findings and a clearer conclusion. Finally, our fifth contribution is related to the lack of systematic empirical support received for the RBV (Newbert, 2007; López-Cabrales et al., 2009). For this reason, having demonstrated that a number of resources (knowledge materialized in HC and innovation) and capabilities (ACAP and HC) can be seen as good drivers of competitive advantages, this study presents empirical support for such a theoretical approach.

As is the case of previous studies, our research has certain limitations that provide opportunities for future research. First, due to the limited information available, our study does not include all of the variables that explain performance. Second, we relied on cross-sectional data gathered in 2013. However, this does not represent a relevant problem because our objective performance measure is from 2016, showing that performance has increased from the innovations developed three years before. We believe that the time lag in this case is an advantage instead of a limitation because in several occasions, testing contemporary effect might be misleading (Agostini et al., 2015). As argued by Agostini et al. (2015), Jiao et al. (2016) and Pérez-Luño et al., (2014), it is important to take time lag into account to ensure that performance has been reached from those innovations. Finally, our study is based on one sector only, the wine industry. While we believe that this adds value to the literature by the specific analysis developed, future research confirming our hypotheses in other contexts would be desirable.

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Chapter 4:

The Effect of Market Orientation on Innovation:

Moderating Role of Absorptive Capacity

Chapter 4:

The Effect of Market Orientation on Innovation: Moderating Role of Absorptive Capacity

4.0 Abstract

Previous literatures have studied market orientation (MO) and absorptive capacity (ACAP) as key concepts in the efforts of achieving innovation. This paper extends this subject by introducing absorptive capacity (ACAP) as a moderating variable on the relationship between market orientation and innovation. The discussion empirically examines the research model using survey data from small wine industries in Spain. While the findings confirm previous studies that claim a positive relationship among MO and innovation, the results also indicate that ACAP does not moderate the relationship between MO and innovation as the way previous literature claim to be. Therefore, our result shows that the bigger absorptive capacity, the weaker the relationship between market orientation and innovation will be.

Keywords: market orientation (MO), Absorptive capacity; Innovation, Performance.

4.1 Introduction

Knowledge has been seen as an important for the competitive advantage of a firm (Chen and Huang, 2009). It has become focus of organizational innovation for decades, especially in terms of integrating strategy, new knowledge and innovation (Agarwal, et al., 2003). Firms are increasingly improving external information sources to improve innovation, and in the end, improve their performance (Hernandez-Perlines, 2018). However, many companies have difficulty using external flows to optimize the market and manage them.

Discussions about attributes of innovation have helped smaller firms to succeed in competition against long-time players with much greater resources (Kline, 2009). By offering

highly innovative products, small businesses can perform well in the competition, create new demand and facilitate the company's growth (Baker and Sinkula, 2005). By successfully solving the entry challenges, entering the market, establishing the firms' position within the industry and generating above-average returns (Verhees and Meulenberg, 2004).

In this context, market orientation (MO) can be considered as valuable innovation and can also be considered as an antecedent for innovation in which leads competition from existing markets to new ones (Atuahene-Gima and Ko, 2001). Slater and Narver (1995) believe that effective company performance is a configuration of practical management that provides facilities for the development of knowledge which is the basis of competitive advantage. However, in the study of Stucki (2016), it was shown that competitive advantage owned by the company would ultimately affect the company's market performance as measured by customer growth.

Improving customer value through marketing innovation aims to increase the competitive advantage by incorporating varieties of marketing mix concepts (Zhu et al., 2006). If the learning process can improve ability to create consumer value and solve the marketing problems, it can lead to a sustained competitive edge, which in the end leads to innovation (Edquist, 2009). Hence, the present study investigated the relationship between market orientation, absorptive capacity and innovation.

Previous researches on the relationship between knowledge acquisition and implementation with the relationship to MO and innovation often leaves further gaps to study or even sometimes yields contradictory research results. One example of research gaps found is market-oriented relationships with firm performance carried out by Morgan and Vorhies, (2018). Their result that MO influences firm innovative performance is in contrast to research by Wang and Miao (2015), who found that market orientation did not affect innovative performance.

Furthermore in this study, we try to put the focus to the two main antecedents of innovation, which are market orientation (MO) and absorptive capacity (ACAP). In some parts, indeed we explore the issues using already-existed concepts, but in the elaboration we will try to be more specific on newer aspects and relationships between different concepts. The study provides a framework for the discussion on the subject of innovation and its relationship with market orientation and ACAP. These concepts are crucial for small-medium enterprises (Aboelmaged and Hashem, 2019). As (Rosenbusch, et al., 2011; Volberda et al., 2010) admit, organizational innovation is a key driver of effective performance. The findings contribute to performance studies in small and medium-sized business environments and to knowledge, market orientation, and innovation literature by discussing the advantages of the linkage of these constructs.

Therefore, this study aims to examine the effect of MO on innovation and the effect of ACAP on innovation, as well as the possibility of incorporating one construct as a mediating variable. The results of this study are expected to provide empirical evidence about the effect of market orientation on innovation and the effect of ACAP on innovation. This study is also expected to contribute by building a conceptual framework regarding the topic. In addition, the results of this study are expected to contribute to company management in designing and implementing market orientation and maximize innovation.

4.2 Literature Review

According to (Slater and Narver, 1995) companies that have made market orientation as an organizational culture will focus on external market needs, the desire of market demand as a basis for strategizing for each business units in the organization and determine the success of the company. Market orientation is conceptualized in the form of levels (degrees) and the high

and low degree of market orientation influenced by various organizational factors (Jaworski and Kohli, 1996).

4.2.1 Market Orientation

Market-oriented (MO) is studied to better understand customers' requirements and develop solutions to those demands (Jaworski and Kohli, 1996; Slater and Narver, 1995; Li and Atuahene-Gima, 2001). These types of businesses are committed to… "…understanding both the expressed and latent needs of their customers, to sharing this understanding broadly throughout the organization, and to coordinating all activities of the business to create superior customer orientation…" (Slater and Narver, 1995).

Atuahene-Gima and Ko (2001) considered that market orientation as the processes of discovering and understanding desires of not only existing customers, but also potential ones. In the literature, MO is defined as the implementation of marketing concepts in a company's target market and reflects the company's orientation towards customers, competitors and other exogenous factors (Jaworski and Kohli, 1996). Therefore, experts argue that MO is revealed in the company's tendency to produce, disseminate and respond to market intelligence (Cadogan and Diamantopoulos, 1995; Slater and Narver, 1995). In general, it is related to observing and adapting to the activities of existing and potential competitors, as well as allowing focus on knowledge and resources of the firm in solving problems and opportunities derived through such processes (Hotho et al., 2012).

On the perspective and types of MO, (Slater and Narver, 1995) classified company performance (profitability and long-term focus) into customer orientation, which is related to sufficient understanding of target buyers; competitor orientation. While several studies (i.e. Jaworski and Kohli, 1996) consider market orientation as the implementation of the marketing concept, some others (i.e. Slater and Narver, 1995) consider it to be an organizational culture.

Such definitions of MO became a key issue in marketing and strategic organization fields from time to time. In connection with this, aspects of market orientation related to firm's performance and other aspects have been discussed in several researches, some of which can be seen in table below:

Table 4.1: Researches on Market Orientation

Authors	Journal and Years Published	Dimensions of MO
Unidimensional view of MO		
Rakthin, Calantone and Wang	Journal of Business Research - 2016	Market orientation
Meta-analysis of concepts		
Deshpandé and Farley	Journal of Market-Focused Management - 1998	The scales by Narver and Slater (1990), Kohli et al. (1993), and Deshpandé et al. (1993) were compared and refined
Concept by Narver and Slater (MKTOR)		
Narver and Slater	Journal of Marketing - 1990	Customer orientation, competitor orientation, and inter-functional coordination
Slater and Narver	Journal of Marketing- 1995	Customer orientation, competitor orientation, and inter-functional coordination
Pelham and Wilson	Journal of the academy of marketing science - 1995	Customer Understanding Orientation, Customer Satisfaction Orientation, and Competitor Orientation
Atuahene-Gima	Journal of Business Research - 1996	The use of customerInformation, the development of market-oriented strategy and Implementation of a market-oriented strategy
Agarwal, Erramili and Dev	Journal of Service Marketing - 2003	Customer orientation, competitor orientation, and inter-functional coordination
Im and Workman Jr.	Journal of Marketing - 2004	Customer orientation, competitor orientation, and cross-functional integration
Naidoo	Industrial Marketing Management - 2010	Customer orientation, competitor orientation, and inter-functional coordination
Carlos Pinho, Rodrigues and Dibb	Journal of Management Development - 2014	Customer orientation, competitor orientation, and inter-functional coordination
Frosen, Luoma, Jaakkola, Tikkanen, and Aspara	Journal of Marketing - 2016	Customer orientation, competitor orientation, and financial metric
MKTOR (four dimensions)		
Deng and Dart	Journal of Marketing Management - 1994	Customer orientation, competitor orientation, interfunctional coordination and profit emphasis.
Subramanian and Gopalakrishna	Journal of Business Research - 2001	Customer orientation, competitor orientation, long-term focus, and survival-growth
Laforet	Journal of Business Research - 2008	Customer orientation, competitor orientation, long-term focus, and survival-growth
Jangl	Business: Theory - 2016	Customer Intelligence Generation, Competitor Intelligence Generation, Intelligence Dissemination and Integration, Responsiveness to Market Intelligence
Concept by Kohli and Jaworski (MARKOR)		
Kohli and Jaworski	Journal of Marketing - 1991	Intelligence generation, intelligence dissemination, and responsiveness

Authors	Journal and Years Published	Dimensions of MO
Jaworski and Kohli	Journal of Marketing - 1993	Intelligence generation, intelligence dissemination, responsiveness
Kohli, Jaworski and Kumar	Journal of Marketing Research - 1993	Intelligence generation, intelligence dissemination, and responsiveness
Cadogan and Diamantopoulos	Journal of Strategic Marketing - 1995	Intelligence generation, intelligence dissemination, and responsiveness.
Atuahene-Gima and Ko	Organization Science - 2001	Intelligence generation, intelligence dissemination, and responsiveness
Rose and Shoham	Journal of Business Research - 2002	Intelligence generation, intelligence dissemination, and responsiveness
Kara, Spillan and DeShields Jr.	Journal of Small Business Management - 2005	Intelligence generation, intelligence dissemination, and responsiveness
Ward, Girardi and Lewandowska	Journal of marketing Theory - 2006	Intelligence generation, intelligence dissemination, and responsiveness
Ngo and O'Cass	Journal of Marketing Management - 2012	Intelligence generation, intelligence dissemination, and responsiveness
Pascucci, Bartoloni and Gregori	Journal of Small Business and Entrepreneurship - 2016	Intelligence generation, intelligence dissemination, and responsiveness
MARKOR (Four dimensions)		
Kohli and Jaworski	Journal of Marketing - 1990	Market intelligence, intelligence dissemination and organization-wide responsiveness
Deng and Dart	Journal of Marketing Management - 1994	Customer orientation, competitor orientation, interfunctional coordination and profit emphasis.
Subramanian and Gopalakrishna	Journal of Business Research - 2001	Customer orientation, competitor orientation, long-term focus, and survival-growth
Agarwal, Erramili and Dev	Journal of Service Marketing - 2003	Customer orientation, competitor orientation, and inter-functional coordination
Blankson and Cheng	Journal of Business and Industrial Marketing - 2005	Concern for staff, awareness of market environment, profitability/objectives and customer service
OTHER CONCEPTS		
Ruekert	Journal of Research in Marketing - 1992	The use of customerInformation, the development of market-oriented strategy and Implementation of a market-oriented strategy
Baker and Sinkula	Journal of Product Innovation Management - 2005	New Product Performance, Profitability and Market Share

Source: Authors' own elaboration

The constructs of MO is essential to the marketing field of study since it is believed to improve their market performance (Roper and Love, 2018). Likewise, market orientation has emerged as a significant antecedent of innovation and long-term success (Martín-de Castro, 2015). Prominent scholars have not reached a specific consensus on the definition of MO, but the existing proposed definitions already have some mutual characteristics. The definitions of MO that were suggested by Kohli and Jaworski (1991) and Slater and Narver (1995) have been

widely-accepted and frequently-cited in the related field so far. Thus, MARKOR and MKTOR concepts are still generally acceptable measuring instruments and the most widely used scales, either as original forms or as adopted scales.

4.2.2 Market Orientation and Innovation

Several of those studies have shown that MO influences innovation. Firms with market-oriented strategies yield a greater innovative flair (Atuahene-Gima and Ko, 2001). Market orientation is an important antecedent of product innovation behaviors, activities, and performance (Slater and Narver, 1995). In this research, we would also like to explore that innovative practice within firms can be reinforced by applying market orientation principles.

Firms or companies with a high MO have better ability to develop products and services that influence technical level and management-level of innovations, and the influence on innovation is relatively greater (Morgan and Vorhies, 2018). Market orientation has a role in encouraging and supporting current innovations to meet current requirements instead of new product development focusing on fulfilling new requirements (Blankson and Cheng, 2005).

Market-oriented companies focus on customers to run their business (customer orientation) and maintain their competency on facing market competition (competitor orientation). Both of these can be understood if the company coordinates (functional coordination) between functionally well (De Luca and Atuahene-Gima, 2007). Therefore, the company must also try to utilize its resources optimally by innovating. In striving for success, innovation is the way out in creating a product different from other products with approval and also able to cope with changes in a fast environment (Stucki, 2016).

The table below shows several publications on MO as antecedent for innovation.

Table 4.2: Researches on relationship of Market Orientation and Innovation

Authors	Journal and Years Published	Market Orientation Dimensions	Innovation Dimensions	Market Orientation's Effects on Innovation
Atuahene-Gima	Journal of Business Research - 1996	The use of customer Information, the development of market-oriented strategy and Implementation of a market-oriented strategy	Product Innovation	Proven positive and significant relationship
Baker and Sinkula	Journal of Market-Focused Management - 1999	Intelligence Generation, Intelligence Dissemination, and Responsiveness	Product Innovation	MO is not proven to have positive effect on innovation
Atuahene-Gima and Ko	Organization Science - 2001	Intelligence generation, intelligence dissemination, and responsiveness	Product Innovation	MO is proven to have positive effect on innovation
Aldas-Manzano, Kuster, and Vila	European Journal of Innovation Management - 2005	Customer orientation, competitor orientation, and inter-functional coordination	innovation in products, innovation in processes, innovation in strategy and innovation as a whole	MO is not proven to have positive effect on innovation
Laforet	Journal of Business Research - 2008	Customer orientation, competitor orientation, and inter-functional coordination	New product ideas, product(s) launched, innovation prize, the percentage of sales level of investment	MO is proven to have positive effect on innovation
Wang and Miao	Journal of Business Research - 2015	Customer orientation, competitor orientation, and inter-functional coordination	Innovative organizational culture	The effects of two dimensions of MO– customer orientation and competitor orientation–on sales innovation are differentially contingent upon the task environment
Najafi-Tafani, Sharifi, Najafi-Tafani	Journal of Business Research - 2016	Market intelligence, intelligence dissemination and organization-wide responsiveness	Information acquisition, information dissem-ination, and information responsiveness	MO has positive effect on innovation
Morgan and Vorhies	Innovation and Strategy - 2018	Intelligence generation, intelligence dissemination, and responsiveness	Innovativeness and uniqueness of the firm's services and activities	MO has positive effect on innovation

Source: Authors' own elaboration

Relationship between MO and innovation still needs to be further studied. Researches should focus more attention on knowledge as it relates to the relationship between MO and innovation. The knowledge–innovation relationship actually has been widely acknowledged by the literature (Nonaka and Takeuchi, 1995). In the contemporary knowledge-intensive business environment, companies become more dependent on external sources of information to increase innovation and improve their performance (Pérez-Luño et al., 2019). Therefore, we introduce hypothesis 1:

H1. Market orientation has positive influence on innovation

4.2.3 ACAP as moderating variable on market orientation and innovation

Knowledge exchange has been seen as an important indicator of performance success (Lepak and Snell, 2002). It is one of the main predictors of successful organization's ability to learn or acquire the required knowledge (Jansen et al., 2005). As a result, the positive impact of the knowledge exchange can develop the competitive advantage of an organization (Verhees and Meulenberg, 2004).

The concept of absorptive capacity (ACAP) as a procedure of acquiring then exploiting knowledge was first introduced by Cohen and Levinthal (1990). By defining ACAP as the extent to which a company's ability to identify new organizational technical knowledge, assimilate, and apply organizational technical knowledge to achieve organizational goals, this study has triggered further discussions in prominent literatures (Jansen et al., 2005; Zahra and George, 2002). Companies with higher ACAP will be more sensitive to the existence of organizational technical knowledge (Murovec and Prodan, 2009). In addition, the company's ability to identify and recognize organizational technical knowledge also depends on the company's absorption capacity (Pérez Sánchez et al., 2017).

Meanwhile, some previous studies have considered that the performance of a company does not only depend on knowledge that can be acquired by the company, but also on its ability

to transform that knowledge into action (Roper and Love, 2018). The optimization of knowledge within resource-based view (RBV) of the firm is motivated by the effort to build a competitive advantage based on rare and non-substitutable resources (Barney, 1991).

At the point when a company approaches correlative information inflows from different outer sources it will probably take part in learning procurement in light of the esteem and development openings that these inflows could make (Lane et al., 2006; Zahra and George, 2002). Relating to previous discussion about market orientation, Slater and Narver (1995) conceptualize that aspects of customer orientation, competitor orientation, and inter-functional coordination rely so much on the performance of units such as sales, marketing, or competitor intelligence. Personnels in these units have opportunities to experience competitors' products and services as well as directly interact with their customers, hence they need adequate process of acquisition, assimilation, transformation, and application of customer and competitor intelligence (Rakthin et al., 2016).

Deshpandé and Farley (1998) is one of the few publications which have drawn relationship between the market orientation construct to organizational innovation. They suggest that "…the fundamental question is whether customer orientation, as it relates to corporate culture and in concert with organizational innovativeness, has a measurable impact on business performance." As a strategic complementarity, the market orientation role sometimes overlaps the role of ACAP, although both of them are not always identical (Lichtenthaler, 2009). However, there have not been many researches elaborating the connection of these two elements, at least in reputable-graded journals. We can see published works on the relationship of market orientation and ACAP from table 4.3 below:

Table 4.3: Researches on relationship of Market Orientation and ACAP

Authors	Journal and Years Published	Market Orientation Dimensions	ACAP Dimensions	MO and ACAP relationship
Hodgkinson, Hughes and Hughes	Journal of Strategic Marketing - 2012	Intelligence generation, intelligence dissemination, and responsiveness	Knowledge acquisition, assimilation transformation, exploitation	No significant relationship
Najavi-Tafani, Sharifi and Najavi-Tafani	Journal of Business Research - 2016	Market intelligence, intelligence dissemination and organization-wide responsiveness	Unidimensional ACAP	ACAP as moderating variable on MO's effect towards new product performance
Lichtenhaler	Journal of Business and Industrial Marketing - 2016	Unidimensional MO	Unidimensional ACAP	Several possibilities of MO and ACAP based on volume of interaction
Rakthin, Calantone and Wang	Journal of Business Research - 2016	Market orientation	Potential and realized ACAP	Both MO and ACAP are antecedents of innovative performance

Source: Authors' own elaboration

Seen from table above, there have not been wide collections of researches focusing on the relationship between marketing orientation (MO) and absorptive capacity (ACAP). However, we are still intending to incorporate both constructs to our study, considering both of them have been proven to be antecedents of innovation. We follow the steps of Najafi-Tavani et al., (2016) and Rakthin et al., (2016) who developed their models by involving both MO and ACAP.

Past reviews for this area of investigation mainly concentrate on the ingenuity of the company, on how much the hierarchical culture advances and backings innovation (Petrakis, et al., 2015; Wang and Miao, 2015) or investigates just a single kind of innovation, mainly product innovation (Li and Atuahene-Gima, 2001). The integration of external knowledge also requires a qualified kind of interaction and complementarity, which can be translated into relatedness and assorted variety of the new learning obtained from outside sources with the

association's current information or current advancement exercises should additionally open up these gainful impacts (Martín-de Castro, 2015; Nodari et al., 2016)

The implementation of ACAP to maximize innovation should adapt with the dynamics of environmental change, especially in fierce competition (Roper and Love, 2018). It can be in the shape of new products and services, the development of new markets, and the introduction of new forms of organization (Burcharth et al., 2015). The main purpose of innovation is to increase sources of energy, financial strength and facilities including organizational structure and procedures (Lumpkin and Dess, 2001). Innovation as a strategic component in many companies depends on highly experienced and responsive technology in terms of product form and product delivery procedures (del Carmen Haro-Domínguez et al., 2007).

Besides market orientation, ACAP has been proven as influential factor in company innovation (Cohen and Levinthal, 1990; Zahra and George, 2002). Therefore, companies are required to be able to create judgments and new ideas and offer innovative products. Company performance is a measure of the success of a company that is measured every time period that has been determined (Rothaermel and Alexandre, 2009). ACAP has been well-explored as an antecedent of innovation, as seen in the table below:

Table 4.4: Researches on relationship of ACAP and Innovation

Authors	Journal and Years Published	ACAP Dimensions	Dimensions of Innovation	Innovation's Effects on Performance
Keller	Journal of development economics - 1996	Capacity of acknowledged absorption	Research and development innovation, marketing innovation, process innovation and product innovation	No significant relationship
Cohen and Levinthal	Administrative Science Quarterly - 1990	Knowledge acquisition, assimilation transformation, exploitation	Innovation speed and innovation magnitude	Innovation speed is a significant predictor, but innovation magnitude is barely significant.
Jansen, Van Den Bosch, and Volberda	The Academy of Management Journal - 2005	Potential ACAP and Realized ACAP	Exploratory and exploitative Innovation	Organizational units may differ in their ability to manage levels

Authors	Journal and Years Published	ACAP Dimensions	Dimensions of Innovation	Innovation's Effects on Performance
				of potential and realized ACAP and in ability to create value from their absorptive capacity
Larrañeta, Zahra, and Galán	Frontiers of Entrepreneurship e3Research - 2007	Potential ACAP and Realized ACAP	Technological innovation	Potential ACAP is positively associated with the strategic variety
Scuotto, Del Giudice and Carayannis	Journal of Technology Transfer - 2017	External knowledge, Internal knowledge, R&D activity	Faster time to market, faster to product adoption, product lifecycle management	innovation performance has a positive correlation with absorptive capacity
Hernandez-Perlines	Journal of Family Business Management - 2018	Absorptive Capacity	Innovation	Innovation has positive effect on performance
Vlačić, Dabić, Daim and Vlajčić	Tehnological Forecasting and Social Change - 2018	Knowledge acquisition, assimilation transformation, exploitation	External innovativeness	External innovativeness has positive effect on innovation performance

Source: Authors' own elaboration

Most of the findings of the mentioned previous researches indicate that relationship exists between ACAP and innovation. Instead of for the purpose of growth, the role of ACAP in innovation becomes more essential for survival purposes, especially in the uncertain and competitive environment (Hernandez-Perlines, 2018). Past reviews for the most part concentrate on the ingenuity of the company, on how much the hierarchical culture advances and backings innovation or investigates just a single kind of innovation, mainly product innovation (Barney, 1991; Roper and Love, 2018). We also would like to see whether in our case, ACAP also serves as an antecedent of innovation. Therefore, we formulate this hypothesis 2:

H2. Market orientation has positive influence on innovation

However, we also believe that there have been abundant researches discussing ACAP as antecedent of innovation. So, in this research, we try different approach by placing ACAP as a moderator for the main relationship between MO and innovation. Here, innovation is a

result of process of organizational learning and knowledge creation, which cannot be separated by knowledge acquired from orientation in external environment.

Therefore, we formulate this hypothesis 3:

H3: ACAP acts as a moderating variable on the positive influence of market orientation on innovation

4.3 Research Methodology

First, this study investigates the effects of MO on innovation, then also calculates the moderating role of ACAP in generating value out of MO toward innovation. The research model can be seen below :

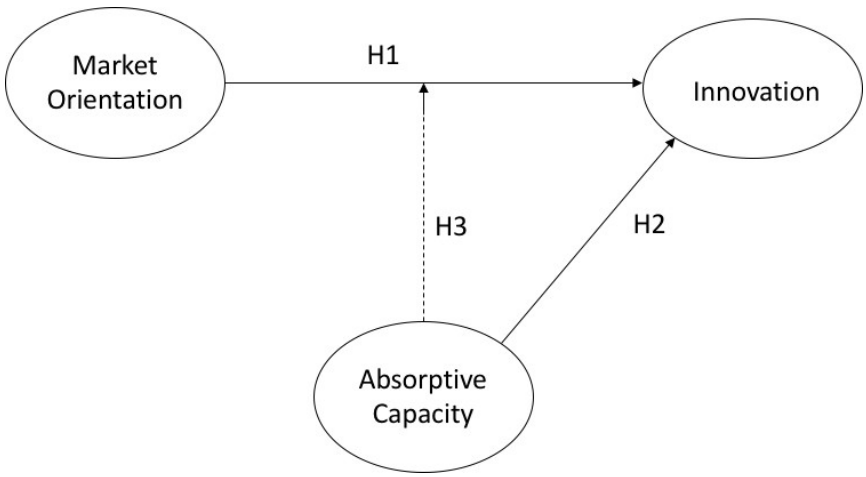

Figure 4.1: Research Framework

We use a sample of Spanish wineries to conduct our analysis as they represent a population of firms where market orientation, ACAP, and innovation are the dimensions. In 2013, we surveyed a population of 520 Spanish wineries. We received responses from 138 directors of the firms (response rate of 29%).

Afterwards, this paper will be carried out into empirical study. The construct items were mainly adapted from previous studies and modified for use in an innovation context. For

variables we used for this research, we benefit from previous research with already proven measurement scales. For market orientation, we adapted the scales proposed by (Jaworski and Kohli, 1996). For ACAP, we use scales by (Jansen et al., 2005). For innovation, we adapted the scales proposed by (Zhang et al., 2015)

The measurement model was estimated using partial least squares based on principal component-based estimation approach (Abdi et al., 2013). The scales of ACAP, MO and innovation were one-dimensional. We eliminated four items of ACAP and one item of MO since their factor loadings were smaller than 0.6.

Table 4.5: Reliability indexes of measurement scales

	Cronbach's Alpha	Composite Reliability	AVE
ACAP	0.958	0.963	0.640
Innovation	0.966	0.971	0.767
MO	0.882	0.902	0.544

As we consider all the dimensions as reflective constructs, we evaluated their internal consistency and validity according to the procedures suggested by (Hair et al., 2016) Internal consistency of the dimensions was evaluated considering three indicators: Cronbach's alpha indicator exceeded the recommended threshold of 0.7, the composed reliability coefficient (CR) was greater than 0.7 (Hair et al., 2016) and the average variance extracted (AVE) was over 0.5 (Fornell and Larcker, 1981). As table 4.5 shows, the AVE and CR of all the constructs are equal to greater than the recommended threshold values of 0.50 and 0.70. The values indicate that convergent validity and reliability are established. We conclude that the overall results of the model can proceed for structural evaluation.

Table 4.6: Fornell-Larcker Criterion

	ACAP	Innovation	MO	ACAP*MO
ACAP	0.800			
Innovation	-0.392	0.876		
MO	-0.292	0.612	0.738	
ACAP*MO	0.174	-0.129	0.187	1.000

We analysed scale validity for the constructs. We confirm convergent validity as all the reflective indicators, and the reflective construct for ACAP and HC showed significant and high standardized loadings (>0.6; p-value<0.000) (Hair et al., 2016). We checked discriminant validity by linear correlation between each pair of dimensions. These values were less than the square root of the AVE in the scales (see table 4.6), showing evidence that each reflective construct related stronger to its own scales than to the others.

Table 4.7: Heterotrait-Monotrait Ratio of Correlations (HTMT)

	ACAP	Innovation	MO
ACAP			
Innovation	0.392		
MO	0.266	0.583	
ACAP*MO	0.180	0.132	0.236

We further analysed this validity in depth with the heterotrait-monotrait ratio of correlations (HTMT). These values, shown in Table 4.7, were lower than the threshold of 0.9 (Henseler et al., 2016).

4.4 Results and Discussion

Next, the relationships between constructs were analysed through structural equation modeling (SEM). with SmartPLS 3.0. With PLS-SEM approach, we can test causal-predictive relationships between the latent variables simultaneously as well as examine the relationship with complex variables, (Henseler et al., 2016). The commonly used critical value for the two-tailed t-test is 1.96 for the significance level of 10 percent (Hair et al., 2016). Table below summarizes the path coefficients and their p-values.

Table 4.8: Path Analysis Results

		Path Coefficient	Standard Deviation	p-values	Decision
H1	MO -> Innovation	0.599	0.050	0.000	Supported
H2	ACAP -> Innovation	-0.181	0.054	0.001	Not supported

According to table 4.8, there is a significant positive effect of market orientation towards innovation (β = 0.599, p-value < 0.001), which makes H1 is supported. However, different situation occurred on H2, where there was a negative effect of ACAP on innovation (β = -0.181, p-value = 0.001). Here, hypothesis 2 is rejected, so ACAP does not have positive relationship with innovation.

About the negative value of H2, possible explanation showing our result differs from previous studies on ACAP and innovation is because the ACAP scales of (Jansen et al., 2005) and innovation scales of (Zhang et al., 2015) did not conform with small-medium industry. In the case of positive relationship between ACAP and innovation as shown in Jansen et al., (2005), Scuotto et al. (2017) and Vlačić et al. (2019), the scales were applied in large companies or environments. Since we did our study among Spanish home industry wine firms, the result we obtained was different.

Table 4.9: Moderation Path

	Moderation Effect Path	β	p-value	Decision
H3	MO * ACAP -> Innovation	-0.251	0.000	Not supported

As table 4.9 shows, the moderating effect of ACAP is significant negative, although the p-value showed it was significant. In this case of hypothesis 3 (H3), the obtained path coefficient -0.251 showed that ACAP's effect on the relationship of MO and innovation is negative. The bigger ACAP companies obtain, the weaker the relationship between MO and innovation. This phenomenon was explained before as a high level of ACAP may have negative effects in the process of learning and acquiring knowledge (Flatten et al., 2011)). "This capacity enables the acquisition of new knowledge from customers and improves market responsiveness, but it may fail to help the firm develop radically new technological solutions or address entirely new markets…" (De Luca and Atuahene-Gima, 2007).

A high ACAP might also cause unwanted problems on the transformation and exploitation processes (Volberda et al., 2010). Obtaining knowledge from the same external sources might be successful but they are likely to fail in achieving radical innovation or spot technological discontinuities (Lichtenthaler, 2016). Based on our result, H3 is still rejected. The result did not answer our question in the literature review that whether as a moderating variable, ACAP will give positive effect. Hence, the result is not supported. This disappointing result also failed to correspond the finding by (Najafi-Tavani et al., 2016)

4.5 Conclusion, Limitation and Recommendation

This study contributes to strategic management literature by extending previous studies (i.e., (Morgan and Vorhies, 2018; Najafi-Tavani et al., 2016) through investigating the relationships between market orientation (MO), absorptive capacity (ACAP) and innovation. This study extends the latter by incorporating ACAP to further understand the effects of market orientation on innovation.

Based on this assumption, this paper aims to provide more elaborate analysis on the relationship between the three constructs using unidimensional constructs. The statistical results confirm the positive relationship between market orientation and innovation. However, moderating effect of absorptive capacity on the relationship between MO and innovation are not proven to be positive in our case.

While this study answers suggestion by (Morgan and Vorhies, 2018) to consider the quality of market orientation for its effects on firm innovation, the result shows that the presence of ACAP would risk the quality of MO on innovation as seen from the negative effect. possible explanation showing our result differs from previous studies on ACAP and innovation is because the ACAP scales of (Jansen et al., 2005) and innovation scales of (Zhang et al., 2015) did not conform with small-medium industry.

As in this case, the result has become one of the limitations. Our study is based in just one sector, the wine industry, which limits the opportunity of research scales that are usually applied in larger companies or larger environments. ACAP. In the other hand, future research designed to confirm or oppose our hypotheses and findings would be desirable.

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Chapter 5: Conclusions

Chapter 5: Conclusions

In this dissertation, I closely examined whether environments and activities of sharing knowledge has a positive and significant effect on innovation. Knowledge sharing activities can create good and beneficial innovations for the company because innovation is generated from knowledge and nurturing process that can create better innovation. As the backgroundof the study, the used data is from Spanish wine industry.

The dissertation is presented in three parts/chapters. My first discussion (chapter 2) revisits measures of absorptive capacity (ACAP) as an important concept of knowledge-sharing. My second discussion (chapter 3) is intended to deepen the analysis between ACAP, human capital (HC), innovation and performance using unidimensional constructs to better shape their full relationships. The third discussion still involves ACAP, but this time as a moderating effect on the relationship between market orientation (MO) and innovation.

There have been previous studies connecting these phenomena. However, most of the research still lacks elaborations regarding the interrelationships between all of them. In my result, HC and ACAP enhances innovation and performance could extend the RBV, HRM and innovation literatures. The findings improve the innovation literature by providing deeper and more direct analysis on the predictors and consequences of innovation. Organizations must also define and apply appropriate human resource management (HRM) practices for managing people and link them to the firm's core capabilities (Peltokorpi and Tsuyuki, 2006).

Still related to ACAP, through the joint influence of the four of its dimensions, firms can reinforce their HC and then innovation. Having found that both our variables have the same influence to the objective and subjective measures of performance, robustness to the findings and a clearer conclusion is reached. Last but not least, a bundle of resources (knowledge materialized in HC and innovation) and capabilities (ACAP and HC) can be seen as good

drivers of competitive advantages, this study extends the empirical support for such a theoretical approach.

When incorporating MO as an antecedent of innovation, earlier research (Najafi-Tavani et al., 2016) found a positive moderating effect of ACAP on the relationship between MO and new product performance. However, our result did not correspond to this, as ACAP did not act as a moderator on the relationship between MO and innovation. This result surely failed to confirm that "…the organizational learning and dynamic capability perspective, that success of firm process of intelligence gathering and deployment depend on firm capacity to absorb and exploit the received or collected knowledge." (Javalgi et al., 2014).

However, in our explanation, ACAP scales were not compatible with small industry environment. The presence of ACAP would risk the quality of MO on innovation as seen from the obtained negative effect. Thus, the effect of MO on firm innovation products to the market does not depend on the capacity of firms to identify, absorb, and assimilate relevant market information and knowledge. Previous studies in the marketing strategy often measured statistical constructs and evaluations as recent theories in more dynamic learning processes (Baker and Sinkula, 2005) and multi-stage implementations of processes (Bharati et al., 2014). Our contribution strives to improve the implementation process and to promote established innovation strategies such as MO and human capital-related strategies.

The potential theoretical contribution from this paper is that we can better understand not just whether firms listen to their customers or what strategic decisions they have made, but also ministers that market information species and information happens. In addition, the investigation processes the dynamics of the company making a decision. In other words, this study examines the organizational culture and formulation strategy from a learning perspective, creating new insights into the dynamics of the interactions between the industrial environment,

organizational factors, managerial decisions, and the various dimensions of performance outcome.

The potential impact of this research on management is a factor that serves as a benchmark for best practices and the experience of learning process and improvement factors. Here, we consider ACAP as a dynamic ability of a company, with the distribution, assimilation and utilization of knowledge in the foreground. All of the company's stakeholders need to communicate effectively and efficiently with one another and use knowledge. Our data show how the ability to organize the uptake of learning benefits and gain market information.

This study has a number of limitations that scholars may consider as opportunities for future research. As an author, I recognize some limitations, that due to the limited information available, our study relies on cross-sectional data obtained in 2013. However, this does not represent a relevant problem since our objective performance measure is from 2016, showing that performance has increased from the innovations developed three years before. We also believe that the time lag in this case is an advantage instead of a limitation because in several occasions, testing contemporary effect might be misleading. As argued by Agostini et al. (2015), Jiao et al. (2016) and Pérez-Luño et al., (2014), it is important to take time lag into account to ensure that performance has been reached from those innovations. Knowledge utilization and application takes time. Cross-sectional data and one-time survey research method are inherently limited in their power of detecting time-delayed effects or dynamic feedback relationships. Future longitudinal studies would reveal the processes of knowledge absorption and exploitation.

Another limitation is our study is only based in just one sector, the Spanish wine industry. It is necessary to conduct the study in larger scale future studies that draw participants from multiple industries and from multiple countries would help to improve the generalizability of the findings. Although we believe that the theoretical foundation developed here contributes

to innovation literature, there is also a need to conduct the same study in a business with more challenging or turbulent environment. Therefore, future study may investigate the role of potential organizational strategic capabilities and its combination with other organizational orientation (i.e., MO and ACAP) in this context.

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Chapter 2:

Questionnaire

Por favor, clasifique el grado en el que está de acuerdo con las siguientes afirmaciones sobre su empresa, teniendo en cuenta que 1 significa Muy en desacuerdo; 2, En desacuerdo; 3 Indiferente; 4 De acuerdo y 5 Muy de acuerdo.

CAPACIDAD DE ABSORCIÓN

	1 2 3 4 5
AB1 *Nuestra empresa mantiene contactos frecuentes con otras empresas para adquirir nuevo conocimiento*	▬ ▬ ▬ ▬ ▬
AB2 *Los empleados de nuestra empresa se reúnen regularmente con empleados de otras empresas*	▬ ▬ ▬ ▬ ▬
AB3 *Recogemos información sobre la industria a través de medios informales (Ej. comidas con amigos de la industria y charlas)*	▬ ▬ ▬ ▬ ▬
AB4 *Apenas visitamos otras empresas*	▬ ▬ ▬ ▬ ▬
AB5 *Nuestra empresa organiza periódicamente reuniones con clientes o terceras partes para adquirir nuevo conocimiento*	▬ ▬ ▬ ▬ ▬
AB6 *Nuestros empleados contactan con terceras partes (consultores, contables, asesores…) para obtener nuevo conocimiento*	▬ ▬ ▬ ▬ ▬
AB7 *Somos lentos en reconocer cambios en nuestro mercado (Ej. competencia, regulación, demografía)*	▬ ▬ ▬ ▬ ▬
AB8 *Nuestra empresa reconoce rápidamente nuevas oportunidades para servir a nuestros clientes*	▬ ▬ ▬ ▬ ▬
AB9 *Rápidamente analizamos e interpretamos los cambios en la demanda*	▬ ▬ ▬ ▬ ▬
AB10 *Nuestra empresa regularmente considera las consecuencias de cambios en la demanda en nuevos productos y servicios*	▬ ▬ ▬ ▬ ▬
AB11 *Los empleados graban y almacenan nuevo conocimiento para futuras referencias*	▬ ▬ ▬ ▬ ▬
AB12 *Nuestra empresa reconoce la utilidad de nuevo conocimiento externo para el conocimiento existente*	▬ ▬ ▬ ▬ ▬
AB13 *Nuestros empleados apenas comparten sus experiencias*	▬ ▬ ▬ ▬ ▬
AB14 *Nuestra empresa se reúne periódicamente para discutir el efecto de las tendencias del mercado y del desarrollo de productos*	▬ ▬ ▬ ▬ ▬
AB15 *Sabemos con claridad cómo deben realizarse las actividades en nuestra empresa*	▬ ▬ ▬ ▬ ▬
AB16 *Las quejas de los clientes no son escuchadas en nuestra empresa*	▬ ▬ ▬ ▬ ▬
AB17 *Nuestra empresa tiene una clara división de roles y responsabilidades*	▬ ▬ ▬ ▬ ▬
AB18 *Constantemente consideramos cómo podemos explotar mejor nuestro conocimiento*	▬ ▬ ▬ ▬ ▬
AB19 *Nuestra empresa tiene dificultades al desarrollar nuevos productos y servicios*	▬ ▬ ▬ ▬ ▬
AB20 *Nuestros empleados tienen un entendimiento compartido sobre nuestros productos*	▬ ▬ ▬ ▬ ▬

Chapter 3:

Questionnaire

CAPACIDAD DE ABSORCIÓN

	1 2 3 4 5
AB21 *Nuestra empresa mantiene contactos frecuentes con otras empresas para adquirir nuevo conocimiento*	▬ ▬ ▬ ▬ ▬
AB22 *Los empleados de nuestra empresa se reúnen regularmente con empleados de otras empresas*	▬ ▬ ▬ ▬ ▬
AB23 *Recogemos información sobre la industria a través de medios informales (Ej. comidas con amigos de la industria y charlas)*	▬ ▬ ▬ ▬ ▬
AB24 *Apenas visitamos otras empresas*	▬ ▬ ▬ ▬ ▬
AB25 *Nuestra empresa organiza periódicamente reuniones con clientes o terceras partes para adquirir nuevo conocimiento*	▬ ▬ ▬ ▬ ▬
AB26 *Nuestros empleados contactan con terceras partes (consultores, contables, asesores…) para obtener nuevo conocimiento*	▬ ▬ ▬ ▬ ▬
AB27 *Somos lentos en reconocer cambios en nuestro mercado (Ej. competencia, regulación, demografía)*	▬ ▬ ▬ ▬ ▬
AB28 *Nuestra empresa reconoce rápidamente nuevas oportunidades para servir a nuestros clientes*	▬ ▬ ▬ ▬ ▬
AB29 *Rápidamente analizamos e interpretamos los cambios en la demanda*	▬ ▬ ▬ ▬ ▬
AB30 *Nuestra empresa regularmente considera las consecuencias de cambios en la demanda en nuevos productos y servicios*	▬ ▬ ▬ ▬ ▬
AB31 *Los empleados graban y almacenan nuevo conocimiento para futuras referencias*	▬ ▬ ▬ ▬ ▬
AB32 *Nuestra empresa reconoce la utilidad de nuevo conocimiento externo para el conocimiento existente*	▬ ▬ ▬ ▬ ▬
AB33 *Nuestros empleados apenas comparten sus experiencias*	▬ ▬ ▬ ▬ ▬
AB34 *Nuestra empresa se reúne periódicamente para discutir el efecto de las tendencias del mercado y del desarrollo de productos*	▬ ▬ ▬ ▬ ▬
AB35 *Sabemos con claridad cómo deben realizarse las actividades en nuestra empresa*	▬ ▬ ▬ ▬ ▬
AB36 *Las quejas de los clientes no son escuchadas en nuestra empresa*	▬ ▬ ▬ ▬ ▬
AB37 *Nuestra empresa tiene una clara división de roles y responsabilidades*	▬ ▬ ▬ ▬ ▬
AB38 *Constantemente consideramos cómo podemos explotar mejor nuestro conocimiento*	▬ ▬ ▬ ▬ ▬
AB39 *Nuestra empresa tiene dificultades al desarrollar nuevos productos y servicios*	▬ ▬ ▬ ▬ ▬
AB40 *Nuestros empleados tienen un entendimiento compartido sobre nuestros productos*	▬ ▬ ▬ ▬ ▬

1. **CAPITAL HUMANO** Las preguntas que se presentan a continuación van referidas a los **trabajadores a tiempo completo** que por su cualificación tienen importante incidencia **en el desarrollo de cualquier tipo de innovación en la empresa.**

		1 2 3 4 5
H1	Sus destrezas contribuyen al desarrollo de nuevas oportunidades de mercado, producto o servicio	▬ ▬ ▬ ▬ ▬
H2	Sus destrezas nos permiten producir a un menor coste	▬ ▬ ▬ ▬ ▬
H3	Sus destrezas afectan positiva y directamente a la satisfacción del cliente	▬ ▬ ▬ ▬ ▬
H4	Son un activo esencial en la organización	▬ ▬ ▬ ▬ ▬

H5	Sus conocimientos y habilidades son fundamentales para la innovación en la empresa.	▬ ▬ ▬ ▬ ▬
H6	El coste de mantenimiento y desarrollo de estos trabajadores es menor que los beneficios que nos proporcionan	▬ ▬ ▬ ▬ ▬
H7	Gracias a ellos, la empresa es capaz de proporcionar un servicio excelente a sus clientes	▬ ▬ ▬ ▬ ▬
H8	Favorecen el desarrollo de productos y servicios que se pueden considerar como los mejores del sector	▬ ▬ ▬ ▬ ▬
H9	Estos trabajadores colaboran en la formulación e implantación de estrategias eficientes en la empresa	▬ ▬ ▬ ▬ ▬
H10	Sus destrezas y habilidades permiten una mejor respuesta a las nuevas demandas de los clientes	▬ ▬ ▬ ▬ ▬
H11	Son trabajadores esenciales para la mejora de los procesos productivos	▬ ▬ ▬ ▬ ▬
H12	Contribuyen al mantenimiento de la alta calidad de los productos/servicios	▬ ▬ ▬ ▬ ▬
H13	Tienen mayor productividad que los trabajadores a tiempo parcial.	▬ ▬ ▬ ▬ ▬
H14	Desarrollan sus conocimientos y habilidades gracias a la experiencia adquirida en el puesto	▬ ▬ ▬ ▬ ▬
H15	Nuestros competidores no poseen sus conocimientos y destrezas	▬ ▬ ▬ ▬ ▬
H16	Estos trabajadores poseen un conocimientos que puede considerarse el mejor del sector	▬ ▬ ▬ ▬ ▬
H17	Sus destrezas son únicas y no las poseen otros trabajadores de la empresa	▬ ▬ ▬ ▬ ▬
H18	Nuestros competidores no pueden adquirir el conocimiento de nuestros trabajadores acudiendo al mercado	▬ ▬ ▬ ▬ ▬
H19	Sus destrezas son fruto del desarrollo interno en la empresa	▬ ▬ ▬ ▬ ▬
H20	Las características de estos trabajadores no pueden ser imitados por nuestros competidores	▬ ▬ ▬ ▬ ▬
H21	Poseen habilidades y destrezas que se han adaptado a las necesidades particulares de la empresa	▬ ▬ ▬ ▬ ▬
H22	Son difíciles de sustituir por otros recursos en la empresa obteniendo los mismos beneficios	▬ ▬ ▬ ▬ ▬
H23	El conocimiento y habilidades de estos trabajadores es lo que nos distingue de nuestros competidores	▬ ▬ ▬ ▬ ▬
H24	Poseen características que son muy difíciles de reemplazar	▬ ▬ ▬ ▬ ▬

Por favor, indique la posición de su empresa teniendo en cuenta que: 1= Muy de acuerdo con la posición situada a la izquierda; 3= Muy de acuerdo con una posición intermedia entre ambos extremos; 5= Muy de acuerdo con la posición situada a la derecha

Nuestros productos:		**1**	**2**	**3**	**4**	**5**	
IN1	Son muy comunes para nuestra industria	▬	▬	▬	▬	▬	Son muy novedosos para nuestra industria
IN2	No presentan desafíos en nuestra industria	▬	▬	▬	▬	▬	Presentan desafíos en nuestra industria…
IN3	No ofrecen nuevas ideas en nuestra industria	▬	▬	▬	▬	▬	Ofrecen nuevas ideas en nuestra industria…
IN4	No son creativos	▬	▬	▬	▬	▬	Son muy creativos
IN5	No son interesantes	▬	▬	▬	▬	▬	Son muy interesantes
IN6	No tienen capacidad de generar nuevas ideas para desarrollar otros productos	▬	▬	▬	▬	▬	Tienen mucha capacidad de generar nuevas ideas pa desarrollar otros productos.
La velocidad de desarrollo de nuestros nuevos productos ha sido…							
IN7	Muy por debajo de nuestros objetivos	▬	▬	▬	▬	▬	Muy por encima de nuestros objetivos
IN8	Más lenta que la media de la industria	▬	▬	▬	▬	▬	Más rápida que la media de la industria
IN9	Mucho más lenta de lo que esperábamos	▬	▬	▬	▬	▬	Mucho más rápida de lo que esperábamos
IN10	Más lenta que la velocidad media del desarrollo de nuestros productos	▬	▬	▬	▬	▬	Más rápida que la velocidad media del desarrollo nuestros productos

Supporting tables:

ROBUSTNESS ANALYSES

SUBJECTIVE PERFORMANCE: ACAP—HC---INNOV---PERFORM

MODEL 1: ACAP + HC---INNOV---PERFORM

Direct effects	**β (t-Stat)**	**R_2**
H_1. Absorptive Capacity→Innovation	0.131 (1.408)	0.087
H_2. Human Capital→Innovation	0.208* (2.101)	
H_3. Innovation→Subjective Performance	0.259** (3.021)	0.100
Indirect effects		
Absorptive Capacity →Subjective Performance	0.034 (1.124)	
Human Capital→Subjective Performance	0.054 (1.626)	
Controls		
Firm Size→ Subjective Performance	-0.044 (0.407)	
Family business→Subjective Performance	0.180* (2.159)	
+: significant at p<0.10; *: significant at p<0.05; **: significant at p<0.01		

MODEL 2: CHAIN: HC--- ACAP ---INNOV---PERFORM

Direct effects	**β (t-Stat)**	**R_2**
H_1. Human Capital→ Absorptive Capacity	0.500** (8.411)	0.250
H_2. Absorptive Capacity →Innovation	0.234** (3.079)	0.055
H_3. Innovation→Subjective Performance	0.260** (3.242)	0.100
Indirect effects		
Human Capital →Innovation	0.137** (2.937)	
Human Capital →Subjective Performance	0.035+ (1.948)	
Human Capital→Subjective Performance	0.071* (2.109)	
Controls		
Firm Size→ Subjective Performance	-0.044 (0.435)	
Family business→Subjective Performance	0.180* (2.221)	
+: significant at p<0.10; *: significant at p<0.05; **: significant at p<0.01		

OBJECTIVE PERFORMANCE: ACAP—HC---INNOV---PERFORM

MODEL 1: ACAP + HC---INNOV---PERFORM

Direct effects	**β (t-Stat)**	**R_2**
H_1. Absorptive Capacity→Innovation	0.133 (1.418)	0.088
H_2. Human Capital→Innovation	0.207* (2.062)	
H_3. Innovation→ Objective Performance	0.290** (3.593)	0.100
Indirect effects		
Absorptive Capacity → Objective Performance	0.038 (1.236)	
Human Capital→ Objective Performance	0.060+ (1.748)	
Controls		
Firm Size→ Objective Performance	-0.071 (0.739)	
Family business→ Objective Performance	0.096 (1.218)	
+: significant at p<0.10; *: significant at p<0.05; **: significant at p<0.01		

MODEL 2: HC--- ACAP ---INNOV---PERFORM

Direct effects	**β (t-Stat)**	**R_2**
H_1. Human Capital→ Absorptive Capacity	0.500** (8.354)	0.250
H_2. Absorptive Capacity →Innovation	0.236** (3.063)	0.056
H_3. Innovation→Objective Performance	0.292** (3.616)	0.101
Indirect effects		
Human Capital →Innovation	0.118** (2.723)	
Human Capital → Objective Performance	0.069* (2.269)	

Human Capital→ Objective Performance	0.034* (2.094)
Controls	
Firm Size→ Objective Performance	-0.071 (0.746)
Family business→ Objective Performance	0.096 (1.218)
+: significant at p<0.10; *: significant at p<0.05; **: significant at p<0.01	

OBJECTIVE PERFORMANCE: RETURN OF ASSETS (ROA 2015)

Direct effects	**β (t-Stat)**	**R_2**
H_1. Absorptive Capacity→Human Capital	0.499** (8.225)	0.249
H_2. Human Capital→Innovation	0.276** (3.263)	0.076
H_3. Innovation→Objective Performance	0.184* (1.967)	0.040
Indirect effects		
Absorptive Capacity→Innovation	0.138** (2.849)	
Absorptive Capacity→ Objective Performance	0.025 (1.546)	
Human Capital→ Objective Performance	0.051+ (1.672)	
Controls		
Firm Size→ Objective Performance	-0.074 (0.911)	
Family business→ Objective Performance	-0.021 (0.210)	
+: significant at p<0.10; *: significant at p<0.05; **: significant at p<0.01		

Questionnaire

VARIABLES DE MARKETING

1 significa Muy en desacuerdo; 2, En desacuerdo, 3 Indiferente, 4 De acuerdo y 5 Muy de acuerdo		1 2 3 4 5
MK1	Nuestra bodega ofrece productos de la más alta calidad	▬ ▬ ▬ ▬ ▬
MK2	La calidad de nuestros productos es consistentemente alta	▬ ▬ ▬ ▬ ▬
MK3	Nuestros clientes consideran nuestros productos muy fiables	▬ ▬ ▬ ▬ ▬
MK4	Nuestra bodega es considerada como una bodega "top" de calidad	▬ ▬ ▬ ▬ ▬
MK5	Nuestros clientes disfrutan visitando nuestras instalaciones	▬ ▬ ▬ ▬ ▬
MK6	Comprar nuestros productos es considerado prestigioso	▬ ▬ ▬ ▬ ▬
MK7	Comprar nuestros productos es considerado un símbolo de status (de alto status)	▬ ▬ ▬ ▬ ▬
MK8	Comprar nuestros productos se ajusta al estatus social de nuestros clientes	▬ ▬ ▬ ▬ ▬

CAPACIDAD DE ABSORCIÓN

		1 2 3 4 5
AB41	*Nuestra empresa mantiene contactos frecuentes con otras empresas para adquirir nuevo conocimiento*	▬ ▬ ▬ ▬ ▬
AB42	*Los empleados de nuestra empresa se reúnen regularmente con empleados de otras empresas*	▬ ▬ ▬ ▬ ▬
AB43	*Recogemos información sobre la industria a través de medios informales (Ej. comidas con amigos de la industria y charlas)*	▬ ▬ ▬ ▬ ▬
AB44	*Apenas visitamos otras empresas*	▬ ▬ ▬ ▬ ▬
AB45	*Nuestra empresa organiza periódicamente reuniones con clientes o terceras partes para adquirir nuevo conocimiento*	▬ ▬ ▬ ▬ ▬
AB46	*Nuestros empleados contactan con terceras partes (consultores, contables, asesores…) para obtener nuevo conocimiento*	▬ ▬ ▬ ▬ ▬
AB47	*Somos lentos en reconocer cambios en nuestro mercado (Ej. competencia, regulación, demografía)*	▬ ▬ ▬ ▬ ▬
AB48	*Nuestra empresa reconoce rápidamente nuevas oportunidades para servir a nuestros clientes*	▬ ▬ ▬ ▬ ▬
AB49	*Rápidamente analizamos e interpretamos los cambios en la demanda*	▬ ▬ ▬ ▬ ▬
AB50	*Nuestra empresa regularmente considera las consecuencias de cambios en la demanda en nuevos productos y servicios*	▬ ▬ ▬ ▬ ▬
AB51	*Los empleados graban y almacenan nuevo conocimiento para futuras referencias*	▬ ▬ ▬ ▬ ▬
AB52	*Nuestra empresa reconoce la utilidad de nuevo conocimiento externo para el conocimiento existente*	▬ ▬ ▬ ▬ ▬
AB53	*Nuestros empleados apenas comparten sus experiencias*	▬ ▬ ▬ ▬ ▬
AB54	*Nuestra empresa se reúne periódicamente para discutir el efecto de las tendencias del mercado y del desarrollo de productos*	▬ ▬ ▬ ▬ ▬
AB55	*Sabemos con claridad cómo deben realizarse las actividades en nuestra empresa*	▬ ▬ ▬ ▬ ▬
AB56	*Las quejas de los clientes no son escuchadas en nuestra empresa*	▬ ▬ ▬ ▬ ▬
AB57	*Nuestra empresa tiene una clara división de roles y responsabilidades*	▬ ▬ ▬ ▬ ▬

AB58 *Constantemente consideramos cómo podemos explotar mejor nuestro conocimiento*	_ _ _ _ _
AB59 *Nuestra empresa tiene dificultades al desarrollar nuevos productos y servicios*	_ _ _ _ _
AB60 *Nuestros empleados tienen un entendimiento compartido sobre nuestros productos*	_ _ _ _ _

INNOVACION

Por favor, indique la posición de su empresa teniendo en cuenta que: 1= Muy de acuerdo con la posición situada a la izquierda; 3= Muy de acuerdo con una posición intermedia entre ambos extremos; 5= Muy de acuerdo con la posición situada a la derecha

Nuestros productos:		**1**	**2**	**3**	**4**	**5**	
IN1	Son muy comunes para nuestra industria	_	_	_	_	_	Son muy novedosos para nuestra industria
IN2	No presentan desafíos en nuestra industria	_	_	_	_	_	Presentan desafíos en nuestra industria…
IN3	No ofrecen nuevas ideas en nuestra industria	_	_	_	_	_	Ofrecen nuevas ideas en nuestra industria…
IN4	No son creativos	_	_	_	_	_	Son muy creativos
IN5	No son interesantes	_	_	_	_	_	Son muy interesantes
IN6	No tienen capacidad de generar nuevas ideas para desarrollar otros productos	_	_	_	_	_	Tienen mucha capacidad de generar nuevas ideas para desarrollar otros productos.
La velocidad de desarrollo de nuestros nuevos productos ha sido…							
IN7	Muy por debajo de nuestros objetivos	_	_	_	_	_	Muy por encima de nuestros objetivos
IN8	Más lenta que la media de la industria	_	_	_	_	_	Más rápida que la media de la industria
IN9	Mucho más lenta de lo que esperábamos	_	_	_	_	_	Mucho más rápida de lo que esperábamos
IN10	Más lenta que la velocidad media del desarrollo de nuestros productos	_	_	_	_	_	Más rápida que la velocidad media del desarrollo de nuestros productos